



UNANI SYSTEM OF MEDICINE

The Science of Health and Healing



**Ministry of Ayurveda, Yoga & Naturopathy, Unani,
Siddha and Homoeopathy (AYUSH)
Government of India**

2016



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Mr. Mohammad Niyaz Ahmad

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अजीत मोहन शरण
AJIT M. SHARAN



सचिव
भारत सरकार
आयुर्वेद, योग व प्राकृतिक चिकित्सा
यूनानी, सिद्ध एवं होम्योपैथी (आयुष) मंत्रालय
आयुष भवन, 'बी' ब्लॉक, जी.पी.ओ. कॉम्प्लेक्स,
आई.एन.ए., नई दिल्ली—110023

SECRETARY
GOVERNMENT OF INDIA
MINISTRY OF AYURVEDA, YOGA & NATUROPATHY
UNANI, SIDDHA AND HOMOEOPATHY (AYUSH)
INA, NEW DELHI - 110023
Tel. : 011-24651950 Telefax : 011-24651937
E-mail : secy-ayush@nic.in

FOREWORD

The Unani System of Medicine is one of the oldest healthcare systems of the world. Originating in Greece (Yūnān), this system travelled to many countries before coming to India to find here its permanent home. During its journey wherever it passed, the system enriched its repository by imbibing which was best of the healthcare systems in vogue in those countries. The system after getting further developed in the Arab and Persian lands came to India around the 8th century and took deep roots in the Indian civilization. The Indian scholars and physicians have made significant contributions to the further advancement of this system. Unani system has the longest and continuous history in India. Ever since Independence, the Unani system has enjoyed the Government of India's increasing support and funds for its multi-faceted development and today India has got global recognition for developing Unani Medicine to greater heights.

Unani System of Medicine enjoys a respectable position in our national healthcare delivery system along with other indigenous healthcare systems. All these systems including Ayurveda, Yoga & Naturopathy, Unani, Siddha, Sowa Rigpa and Homoeopathy (AYUSH) are officially recognized by Government of India, and practiced throughout India in public, private and voluntary organizations. The AYUSH systems have a distinct identity and capability to manage health problems through a holistic approach. Validation studies have proven their inherent strengths for disease prevention and health promotion, as well as in dealing with lifestyle-related non-communicable diseases, infective diseases, metabolic disorders, etc. At present, these systems come under the jurisdiction of the Ministry of AYUSH, Government of India, and specific policies for them, particularly for their integration in the public healthcare delivery system, have been formulated. Well-planned governmental steps continue for mainstreaming of these systems to effectively address India's contemporary and emerging health challenges.



In the first ever such exercise by the Ministry of AYUSH, steps have been taken to bring out a series of publications with a view of presenting a snapshot of AYUSH systems covering their origin and brief history, their fundamentals and strengths, and their relevance in the contemporary and emerging health scenario. The Ministry of AYUSH is pleased to present this publication entitled *Unani System of Medicine – The Science of Health and Healing*, which is a culmination of a prolonged consultative process involving numerous experts in the fields. The Ministry of AYUSH appreciates the commitment and effort of all those involved in producing and revising this document. The present revised edition is being brought out with the hope that it will reach a wider readership for further propagation of Unani System of Medicine.

(Ajit M. Sharan)

New Delhi

21st April, 2016



Prof. Rais-ur-Rahman
Adviser (Unani) to Govt. of India
&



Director General, CCRUM

Office of Adviser (Unani)
Ministry of AYUSH, Government of India
AYUSH Bhawan, B Block
GPO Complex, INA, New Delhi-110023
Tel.: +91-11-24651966 • Email: adv.ayush@nic.in
Website: www.indianmedicine.nic.in

Office of Director General
Central Council for Research in Unani Medicine
(Ministry of AYUSH, Government of India)
61-65, Institutional Area, Janakpuri, New Delhi -110058
Tel.: +91-11-28521981, 28525715
Fax: +91-11-28522965 • Website: www.crum.net
E-mail: unanimedicine@gmail.com

PREFACE

Unani System of Medicine is a comprehensive medical system, which provides preventive, promotive, curative and rehabilitative healthcare. The system is holistic in nature and takes into account the whole personality of an individual rather than taking a reductionistic approach towards disease. The fundamentals, diagnosis and treatment modalities of the system are based on scientific principles. The basic framework of this system is based on the Hippocratic theory of four Humours, according to which any disturbance in the equilibrium of humours causes disease, and therefore the treatment aims at restoring the humoural equilibrium. The system also believes that Medicatrix Naturae (*Tabī'at Mudabbira'-i Badan*) is the supreme power, which controls all the physiological functions of the body, provides resistance against diseases and helps in healing naturally. Temperament (*Mizāj*) of a patient is given great importance both in diagnosis and treatment of diseases. It is also taken into consideration for identifying the most suitable diet and lifestyle for promoting the health of a particular individual.

Unani System of Medicine, as its name suggests, owes its immediate origin to ancient Greece (*Yūnān*). Since the Greeks adopted Medicine (*Tibb*) from Egypt, the roots of this system go to Egypt and its sister civilization Mesopotamia. It was further adopted by the Romans and in the Middle Ages it travelled to the Arab world, Central Asian countries and parts of the Europe where it developed to great heights. In India, Unani System of Medicine came from Arab and Iran and made a long journey to establish itself as one of the preferred medical systems in the country. Though like other traditional systems it received a setback during the British rule, the system got fresh boost in independent India and the Government of India accorded great importance to the multifaceted development of Unani System of Medicine along with other Indian systems of medicine. As a result, Unani System of Medicine today forms an integral part of the national healthcare delivery system and India is considered its world leader



with the largest infrastructure and network of educational, research and healthcare institutions. To develop the Indian medical systems further, the Government has recently launched National AYUSH Mission (NAM) with the objectives to provide cost-effective AYUSH services with universal access by upgrading AYUSH hospitals and dispensaries, co-location of AYUSH facilities at PHCs, CHCs and DHs; to strengthen institutional capacity through upgrading AYUSH educational institutions; to facilitate the enforcement of quality control of ASU&H drugs; and to support cultivation of medicinal plants by adopting GAPs for providing sustained supply of raw materials.

The education and practice of Unani System of Medicine is under the regulatory control of Central Council of Indian Medicine (CCIM), which is a statutory body established through an Act of Parliament - the Indian Medicine Central Council (IMCC) Act, 1970. Presently there are 46 academic institutions that impart Unani medical education. Of them, eight offer both undergraduate and postgraduate courses, 37 offer only undergraduate courses, and one – National Institute of Unani Medicine (NIUM), Bengaluru – offers only postgraduate courses. The postgraduate courses are taught in 10 disciplines of Unani Medicine. The NIUM, Bengaluru and Government Nizamia Tibbi College (GNTC), Hyderabad have also started Ph.D. programme in Unani Medicine.

In the area of healthcare delivery, adequate number of Unani hospitals and dispensaries is functioning in all pockets of the country, predominantly through Central and State Governments. The National Medicinal Plants Board (NMPB), an apex national body under the Ministry of AYUSH, Government of India, was set up in November 2000 to co-ordinate all matters relating to medicinal plants in the country; and to plan and support policies and programmes for growth of trade, export, conservation and cultivation of medicinal plants. There are 505 drug manufacturing units engaged in manufacturing of Unani drugs in the country. Besides, Indian Medicines Pharmaceutical Corporation Limited (IMPCL), an ISO and GMP certified company under the administrative control of the Ministry of AYUSH, was established on 12th July, 1978 with the objectives to manufacture and supply genuine Ayurvedic and Unani medicines to the Government research councils (CCRUM, CCRAS, etc.), hospitals and dispensaries all over the country. The Pharmacopoeial Laboratory for Indian Medicine (PLIM) is functioning since 1970 as an appellate laboratory for testing of traditional medicines including Unani drugs and development of Pharmacopoeial standards under the purview of Pharmacopoeia Commission for Indian Medicine (PCIM).

In the area of research and development in Unani System of Medicine, the Central Council for Research in Unani Medicine (CCRUM) is an apex organisation functioning under the Ministry of AYUSH, Government of India. Having obtained leads in clinical research, drug standardization, survey and cultivation of medicinal plants, and literary research during its three and a half decades long endeavors, contributions of CCRUM have been noticed worldwide. The Council has brought out significant scientific outcomes and documents for reference and use in the field of Unani Medicine. Grant of patents for innovative research outcomes and publication of research work in journals



of international repute have brought laurels to the Council for its spirited engagement in scientific activities. The Council has also taken steps to initiate postgraduate (MD) courses and Ph.D. Programme in Unani Medicine in its two research institutes at Hyderabad and Srinagar.

Besides research and development, the Council also undertakes promotional and healthcare delivery activities to benefit the system and the public at large. It has recently initiated the integration of Unani Medicine in National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) in collaboration with Directorate General of Health Services, Government of India in Lakhimpur Kheri district of Uttar Pradesh. It has also started Swasthya Rakshan Programme (SRP) in 60 villages through its 12 institutes/ centres.

In an attempt to introduce Unani System of Medicine to the global audience, the Department of AYUSH in 2013 brought out a compendium on Unani System of Medicine. As various positive developments took place since then and the printed copies were exhausted, there was a need to bring out its revised edition; and the present document is an effort to meet that requirement. Besides updating its data and incorporating recent developments, this document presents an overview of the historical development of Unani System of Medicine as well as its unique philosophy, basic principles and fundamentals, modes of treatment, use of natural drugs, and scientific achievements. It also provides an insight into the contemporary research and development activities, besides the regulatory mechanism for education, training and practice of Unani System of Medicine. I am sure that the publication will certainly be helpful in widely disseminating the vital information about the strengths of the system and the progress it has made under the patronage and with support of Government of India in different fields.

The Council is sincerely indebted and grateful to Shri Ajit M. Sharan, Secretary, Ministry of AYUSH for his valuable guidance and support in bringing out this new edition. We acknowledge our deep sense of gratitude to Shri Anil Ganeriwala, Joint Secretary and Dr. D.C. Katoch, Adviser (Ayurveda), Ministry of AYUSH for their sincere advices, contributions and encouragement. We extend our thanks to the former officials in the then Department of AYUSH - Shri Anil Kumar, Secretary; Shri Bala Prasad, Joint Secretary; Dr. Syed Asad Pasha, Joint Adviser (Unani); and Prof. S. Shakir Jamil, the then Director General, CCRUM for their vision, able guidance and contributions in bringing out the original publication. We are also thankful to all the experts, reviewers, editors and all those who have directly or indirectly contributed in the preparation of this document.

Dr. Khalid Mahmood Siddiqui, Deputy Director General; Dr. Qamar Uddin, Research Officer (Unani); Mr. Mohammad Niyaz Ahmad, Research Officer (Publication); and Mr. Anirban Rej, Investigator (Statistics), CCRUM also deserve our appreciation for their contribution in updating and revising this document. We are also thankful to



Mr. Mehr-e-Alam Khan, Former Consultant (Portal); and Dr. Misbahuddin Azhar, Dr. Bilal Ahmad, Dr. Jamal Akhtar and Dr. Neelam Quddusi – all Research Officers (Unani), CCRUM who contributed in the development of the document. We hope that the new edition will attract a wider readership and help build a better understanding of the various aspects of Unani System of Medicine. Though adequate care has been taken in assuring accuracy of the information, a room for further review and improvement always remains. Therefore, suggestions and comments from the experts and scientists of the field are always welcome for further improvement.

(Prof. Rais-ur-Rahman)

2nd May, 2016



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Facilitation and Guidance

Shri Anil Kumar Ganeriwala, Joint Secretary, Ministry of AYUSH, Government of India.
Shri Bala Prasad, Former Joint Secretary, Ministry of AYUSH, Government of India.

Content Planning

Prof. Rais-ur-Rahman, Adviser (Unani), Ministry of AYUSH & Director General, Central Council for Research in Unani Medicine (CCRUM); Dr. D.C. Katoch, Adviser (Ayurveda), Ministry of AYUSH; Dr. Syed Asad Pasha, Former Joint Adviser (Unani), Department of AYUSH; Prof. S. Shakir Jamil, Former Director General, CCRUM; Prof. Anis A. Ansari, Former Adviser (Unani), Department of AYUSH; Dr. Mohammed Khalid Siddiqui, Former Director General, CCRUM; Hakim Syed Khaleefathullah, Former Vice-President (Technical), Governing Body, CCRUM; Hakim Khurshid Murad Siddique, Vice-President (Technical), Governing Body, CCRUM; Prof. Syed Zillur Rahman, President, Ibn Sina Academy of Medieval Medicine and Sciences, Aligarh; Prof. K.M. Yusuf Amin, Department of Ilmul Advia, Faculty of Unani Medicine, Aligarh Muslim University, Aligarh; Prof. M.A. Jafri, Former Director, National Institute of Unani Medicine (NIUM), Bengaluru.

Technical Inputs

Dr. Rafath Mehmooda, Former Deputy Director Incharge, Regional Research Institute of Unani Medicine (RRIUM), Chennai; Dr. M.A. Waheed, Former Deputy Director Incharge, Central Research Institute of Unani Medicine (CRIUM), Hyderabad; Dr. Waseem Ahmad Azmi, Deputy Director Incharge, CRIUM, Lucknow; Dr. Naqibul Islam, Former Research Officer Incharge, RRIUM, Srinagar; Dr. Mohammad Fazil Khan, Deputy Director Incharge, RRIUM, New Delhi; Dr. Ghazala Javed, Research Officer (Unani); Mr. Suhail M. Adhami, Consultant (Biostatistics); Dr. Seema Akbar, Research Officer Incharge, RRIUM, Srinagar; Mr. Shamsul Arfin, Research Officer (Chemistry); Mr. Aminuddin, Research Officer (Botany); Dr. Ahmad Sayeed, Research Officer (Unani); Dr. Amanullah, Research Officer (Unani); Dr. Nighat Anjum, Research Officer (Unani); Dr. Merajul Haq, Research Officer (Unani); Dr. Usama Akram, Research Officer (Unani); Dr. Mustehasan, Research Officer (Unani); Dr. Qamar Uddin, Research Officer (Unani); Mr. Mohammad Niyaz Ahmad, Research Officer (Publication); and Mr. Anirban Rej, Investigator (Statistics) – all from CCRUM.



Document Development

Dr. Khalid M. Siddiqui, Deputy Director General; Mr. Mehr-e-Alam Khan, Former Consultant (Portal); Dr. Qamar Uddin, Research Officer (Unani); Dr. Misbahuddin Azhar, Research Officer (Unani); Dr. Bilal Ahmad, Research Officer (Unani); Dr. Jamal Akhtar, Research Officer (Unani); Dr. Neelam Quddusi, Research Officer (Unani); and Mr. Mohammad Niyaz Ahmad, Research Officer (Publication) – all from CCRUM.

Technical Review

Dr. Syed Asad Pasha, Former Joint Adviser (Unani), Department of AYUSH; Dr. Manoj Nesari, Joint Adviser (Ayurveda), Ministry of AYUSH; Dr. Mukhtar Ahmad Qasmi, Deputy Adviser (Unani), Ministry of AYUSH; Dr. Jalees Subhani, Deputy Adviser (Unani), Ministry of AYUSH; Dr. Mushtaq Ahmad, Former Director, Central Research Institute of Unani Medicine, Hyderabad; Dr. M. Iqbal, Former Deputy Director, Regional Research Institute of Unani Medicine, Srinagar; Prof. Syed Abrar, Retired Professor, Government Nizamia Tibbi College, Hyderabad; Prof. Mir Yusuf Ali, Head, Department of Ilmul Advia, Government Nizamia Tibbi College, Hyderabad; Dr. S. Shahul Hameed, Principal, Government Unani Medical College, Chennai; Prof. Syed Mehtab Ali, Former Dean, Faculty of Medicine (Unani), Jamia Hamdard, New Delhi; Dr. Mohd. Aleemuddin Quamri, Lecturer, Department of Moalajat, NIUM, Bengaluru; Dr. Mohammad Akram, Assistant Professor, Department of Tahaffuzi wa Samaji Tibb, Jamia Hamdard, New Delhi; Dr. Abul Hasan Ashraf, Director, Dr. Ahmad Ashraf Memorial Unani Speciality Treatment Centre for Falij, Hyderabad.

Critical Appraisal

Dr. D.C. Katoch, Adviser (Ayurveda), Ministry of AYUSH; Prof. Mansoor Ahmad Siddiqui, Director, NIUM, Bengaluru; Prof. M.A. Jafri, Former Director, NIUM, Bengaluru; Dr. Abdul Hannan, Former Joint Director, CCRUM; Dr. Yasmeen Shamsi, Associate Professor and Head, Department of Kulliyat, Faculty of Medicine (Unani), Jamia Hamdard, New Delhi.

Layout and Production

Mr. Mohammad Niyaz Ahmad, Research Officer (Publication), CCRUM; Mr. Mehr-e-Alam Khan, Former Consultant (Portal), CCRUM; Dr. Misbahuddin Azhar, Dr. Bilal Ahmad and Dr. Neelam Quddusi – all three Research Officers (Unani) from CCRUM.



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ABBREVIATIONS

ADR	- Adverse Drug Reaction
AIDS	- Acquired Immuno Deficiency Syndrome
AIIUM	- All India Institute of Unani Medicine
AIUTC	- All India Unani Tibbi Conference
AMU	- Aligarh Muslim University
ASEAN	- Association of South East Asian Nations
ASU	- Ayurveda, Siddha and Unani
AYUSH	- Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy
BUMS	- Bachelor of Unani Medicine & Surgery
CCIM	- Central Council of Indian Medicine
CCRIMH	- Central Council for Research in Indian Medicine and Homoeopathy
CCRUM	- Central Council for Research in Unani Medicine
CNS	- Central Nervous System
CRIUM	- Central Research Institute of Unani Medicine
CRU	- Clinical Research Unit
CSIR	- Council of Scientific and Industrial Research
DSRI	- Drug Standardization Research Institute
DSRU	- Drug Standardization Research Unit
EDL	- Essential Drugs List
EMEA	- European Medicine Evaluation Agency
EMR	- Extra Mural Research
EPO	- European Patent Office
GCP	- Good Clinical Practice
GLP	- Good Laboratory Practices
GMP	- Good Manufacturing Practices
GOI	- Government of India
GRs	- Genetic Resources
HIV	- Human Immunodeficiency Virus
HPTLC	- High Performance Thin Layer Chromatography
ICCR	- Indian Council for Cultural Relations
ICMR	- Indian Council of Medical Research
IIFT	- Indian Institute of Foreign Trade
IMCC Act	- Indian Medicine Central Council Act
IMPCL	- Indian Medicines Pharmaceutical Corporation Limited
IPR	- Intellectual Property Rights
IPD	- In-Patient Department



ISM & H	- Indian Systems of Medicine and Homoeopathy
ITC	- International Trade Centre
MMT	- Mundij Mushil Therapy
MoU	- Memorandum of Understanding
NABH	- National Accreditation Board for Hospitals & Healthcare Providers
NAM	- National AYUSH Mission
NFUM	- National Formulary of Unani Medicine
NIUM	- National Institute of Unani Medicine
NMPB	- National Medicinal Plants Board
NPCDCS	- National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke
NPTAC-ASU	- National Pharmacovigilance Technical Advisory Committee for Ayurveda, Siddha and Unani
NRHM	- National Rural Health Mission
OPD	- Out-Patient Department
PCIM	- Pharmacopoeia Commission for Indian Medicine
PLIM	- Pharmacopoeial Laboratory for Indian Medicine
PMID	- PubMed Identifier
QCI	- Quality Council of India
R & D	- Research & Development
RCH	- Reproductive and Child Health
RRcum	- Regional Research Centre of Unani Medicine
RRIUM	- Regional Research Institute of Unani Medicine
SAARC	- South Asian Association for Regional Cooperation
SOPs	- Standard Operating Procedures
TCE	- Traditional Cultural Expression
THP	- Traditional Health Practitioner
TKDL	- Traditional Knowledge Digital Library
TMRC	- Traditional Medicine and Materia Medica Research Center
UHC	- Universal Health Coverage
UK-MHRA	- United Kingdom Medicines and Healthcare Products Regulatory Agency
UKPTO	- United Kingdom Patent and Trademark Office
UPC	- Unani Pharmacopoeia Committee
USFDA	- United States Food and Drug Administration
USPTO	- United States Patent and Trademark Office
WHO	- World Health Organization
YNM	- Year Not Mentioned



TRANSLITERATION TABLE

The following Arabic letters have been transliterated with diacritical marks as mentioned against each:

ا	a	ء	r	ڙ	f
ب	b	ڏ	z	ڦ	q
ت	t	ڙ	s	ڻ	k
ٿ	th	ڙ	sh	ڻ	l
ج	j	ڙ	s	ڻ	m
ڻ	h	ڙ	d	ڻ	n
خ	kh	ڙ	t	ڻ	h
ڏ	d	ڙ	ڙ	ڙ	y
ڻ	dh	ڙ	gh		

The following Persian letters have been transliterated with diacritical marks as expressed against each:

پ	p	ڦ	g	ڦ	th
ت	t	ڻ	n	ڻ	ch
چ	ch	ڻ	bh	ڻ	dh
ڏ	d	ڻ	ph	ڻ	kh
ڻ	r	ڻ	th	ڻ	gh

- ڦ has been transliterated with elevated coma (‘) if used in the mid or end of word followed by relevant vowel and this elevated coma is not expressed at the beginning and only related vowel has been used directly.
- Letter ڦ is transliterated as elevated inverted coma (‘).
- Letter ڏ as Arabic letter is transliterated as w and as Persian/Urdu letter is transliterated as v.
- ڦ and ڻ are not expressed in both pause and construct forms.
- Article ڦ is transliterated as al- ('l- in construct form) whether followed by a moon or a sun letter.



- ، as a Persian/Urdu conjunction is transliterated as (o) and as an Arabic conjunction is transliterated as *wa-*.
- Short vowel (-) in Persian/Urdu passive or in conjunction form is transliterated as (-i).
- Double letters have been expressed as following:

، = *uww*

ڱ = *iyy*

- Short & long vowels and Diphthongs are used in the following form:

Short vowels

ڻ = *a*

ڻ = *i*

ڻ = *u*

Long vowels

ڍ = *aa*

ڒ = *ii*

ܰ = *uu*

Diphthongs

ܱܲ = *aw*

ܱܻ = *ay*

ܱܻ = *ii*



EXECUTIVE SUMMARY

The Unani System of Medicine is a comprehensive medical system, which meticulously deals with the various states of health and disease. It provides promotive, preventive, curative and rehabilitative healthcare. The fundamentals, diagnosis and treatment modalities of the system are based on scientific principles and holistic concepts of health and healing. Its holistic approach considers individual in relation to his environment and stresses on health of body, mind and soul. Temperament (*Mizāj*) of a patient is given great importance in diagnosis and treatment of diseases with natural remedies derived mostly from plants. Temperament is also taken into consideration for identifying the most suitable diet and lifestyle for promoting the health of a particular individual. The system is presently practised in India, Bangladesh, Pakistan, Sri Lanka, Nepal, China, Iran, Iraq, Malaysia, Indonesia, Central Asian and Middle Eastern countries, some African and European countries, etc. In India, the system has been developed scientifically, nurtured and systematically integrated in the healthcare delivery system over the years.

The Unani System of Medicine considers the entire universe including human being, disease, drugs, environmental factors, etc. to be intrinsically defined by four primary Qualities - Hot : Cold and Dry : Wet. These Qualities are reflected in all the basic concepts of Unani System of Medicine such as Elements, Temperament and Humours which are used for describing and correlating human health and disease with promotive and curative factors, e.g. diet and drugs. Unani System of Medicine prescribes a methodology to infer a treatment on the basis of Temperament and to test it experimentally during the course of treatment. This accounts for the clinical reproducibility of the therapeutic effects of Unani treatment.

The Unani System of Medicine diagnoses and treats the patient as a whole looking into their overall physical, mental and spiritual aspects. The therapeutics in Unani System of Medicine is described under the major headings of Regimenal therapy ('*Ilāj bi'l-Tadbīr*), Dietotherapy ('*Ilāj bi'l-Ghidhā*'), Pharmacotherapy ('*Ilāj bi'l-Dawā*') and Surgery ('*Ilāj bi'l-Yad*'). Regimenal therapy along with Dietotherapy is considered the best approach for promotion of health and treatment of disease. Unani System of Medicine has also emphasized the importance of psychiatric treatment ('*Ilāj Nafsānī*') in the management of various diseases. Surgical interventions and procedures are elaborately described and practised in conditions, that are not amenable to drug treatment.

The history of Unani System of Medicine is traced back to ancient Egypt and Babylon. Egyptians had adopted the use of medicinal plants as remedy for ailments. They had also initiated surgery as a method of treatment. The studies of Papyri clearly show the ability of then Egyptians in the field of Medicine. Imhotep (2800 BC) and Amenhotep (1550 BC) were some noted physicians of ancient Egypt. Due to great contributions in the field of Medicine, Babylonians also occupied an important place in the history of Unani Medicine. They had used urine sample as a diagnostic tool. During Asclepian period (1200 BC), the Greeks developed the art of Medicine in the light of medical knowledge



of Egyptians and Babylonians. Hippocrates (460–370 BC) was the dominating figure of the classical period of Greek medical history. By searching the natural causes of disease and recording the existing knowledge, he set the ground for Medicine to develop it as a systematic science. A Roman scholar Galen (129-200 AD) stabilized the foundation of this science on which Arab and Persian scholars and physicians like Rabban Ṭabarī (775-890 AD), al-Rāzī (865-925 AD) and Ibn Sīnā (980-1037 AD) developed Unani System of Medicine to great heights. In India, this system was introduced during the eighth century AD, and soon got rooted in the country as an indigenous system of medicine. Unani physicians in India succeeded in retaining its traditional strength and also benefitting from contemporary scientific development over the years. During the second half of the twentieth century, with the support of Government of India, the system fully appropriated the paradigm of modern scientific parameters and developed institutionalized quality education, scientific research and an extensive network of hospitals and dispensaries for meeting the healthcare needs of the people.

A versatile genius, Masīḥ al-Mulk Ḥakīm Ajmal Khān (1868-1927 AD), pioneered research in Unani System with modern scientific parameters in the 1920s. This led to the significant discovery of the alkaloids viz., *Ajmaline*, *Ajmalinine*, *Ajmalicine*, *Isoajmaline*, *Neoajmaline*, *Serpentine*, and *Serpentinine* from a native plant *Rauwolfia serpentina*, used extensively in Unani System of Medicine. The Government of India established a Central Council for Research in Indian Medicine and Homoeopathy (CCRIMH) in 1969 to promote systematic scientific research in different Indian systems of medicine namely Ayurveda, Unani Medicine, Siddha, Yoga & Naturopathy and Homoeopathy. In 1978, the Central Council for Research in Unani Medicine (CCRUM) was set up by dividing CCRIMH to give focused attention to research in Unani System. The CCRUM is functioning under the Ministry of AYUSH, and undertaking multi-dimensional research programme on clinical, pharmacological, fundamental and literary issues of Unani System of Medicine. Besides, the Council also undertakes ethnobotanical and medicinal plants surveys to harness the natural resources for healthcare. The CCRUM has over the past three and a half decades emerged as the leading organization of scientific research into various fundamental and applied aspects of Unani System of Medicine. Presently, 23 centres of the Council and many other institutions are engaged in research on Unani System of Medicine in different parts of the country. Under its clinical research programme, the Council has established scientifically the therapeutic efficacy of various Unani drugs, which were in use for centuries. The Council has taken up clinical trials on 55 drugs for 30 diseases, besides clinical validation of 50 pharmacopoeial drugs for 20 diseases and obtained significant leads in identifying effective treatment of Vitiligo (*Baraṣ*), Eczema (*Nār Fārsī*), Psoriasis (*Dā' al-Ṣadaf*), Hepatitis (*Iltihāb-i Kabid*), Filariasis (*Dā' al-Fīl*), Diabetes mellitus (*Dhayābiṭus Sukkārī*), Rheumatoid arthritis (*Waja' al-Mafāṣil*), Sinusitis (*Iltihāb-i Tajāwif-i Anf*), Bronchial asthma (*Dīq al-Nafas*), etc. The Council has published many monographs, research reports, success stories and more than 300 scientific papers in reputed national and international journals. Under the literary research programme, classical books and manuscripts originally written in Arabic and Persian have been collated, edited, translated into Urdu and got published.

The entire process of drug development i.e. cultivation and collection of medicinal plants, standardization, preclinical toxicity and efficacy studies, and various phases



of clinical trials are undertaken with standard protocols and methodologies. Drug standardization is undertaken by the competent institutions/authority including Pharmacopoeial Laboratory for Indian Medicine (PLIM), Pharmacopoeia Commission for Indian Medicine (PCIM), Unani Pharmacopoeia Committee (UPC) and CCRUM. Till March 2016, six volumes of *National Formulary of Unani Medicine* containing 1179 standardized Unani formulations have been published. Quality standards of 298 single drugs and 100 compound drugs have also been published in *Unani Pharmacopoeia of India* (six volumes in Part I and two volumes in Part II respectively). There are 505 licensed pharmacies manufacturing Unani drugs, in addition to Government of India enterprise Indian Medicines Pharmaceutical Corporation Limited (IMPCL). Manufacturing and sale of Unani drugs are regulated under Drugs and Cosmetics Act, 1940 with mandatory compliance of Good Manufacturing Practices (GMP).

Education and practice in Unani System of Medicine is monitored and regulated by the Central Council of Indian Medicine (CCIM), a statutory body established under the Indian Medicine Central Council Act, 1970. The CCIM *inter alia* prescribes and regulates minimum educational standards in Ayurveda, Siddha and Unani Tibb, besides advising the Central Government on matters relating to recognition (including withdrawal) of medical qualifications in the second schedule of the Indian Medicine Central Council (IMCC) Act, 1970; maintaining the central register for registration of Unani practitioners, and prescribing standards of professional conduct, etiquette and code of ethics to be observed by the practitioners. The five and half years undergraduate course in Unani System of Medicine leading to the award of degree of Bachelor of Unani Medicine and Surgery (*Kāmil-i Tibb o Jarāḥat*) is governed by Indian Medicine Central Council (IMCC) (Amendment) Regulations, 1995. The three year postgraduate courses leading to the award of Doctor of Medicine (*Māhir-i Tibb*) and Master of Surgery (*Māhir-i Jarāḥat*) degrees are governed by IMCC (Postgraduate Unani Education) Regulations, 2007. Presently there are 46 academic institutions that impart Unani medical education. Of them, eight offer both undergraduate and postgraduate courses, 37 offer only undergraduate courses, and one – National Institute of Unani Medicine (NIUM), Bengaluru – offers only postgraduate courses. The postgraduate courses are taught in 10 disciplines of Unani Medicine. Total seats available for the undergraduate and postgraduate courses in these institutions are 2,131 and 147 respectively. The NIUM, Bengaluru and Government Nizamia Tibbi College (GNTC), Hyderabad have also started Ph.D. programme in Unani Medicine. All educational institutions are affiliated to different universities and provide healthcare services as well.

Registration of Unani practitioners is carried out by the State Councils/Boards of Indian Medicine in the provinces and by the CCIM at the Central level. As on April 2015, India has 48,213 registered Unani practitioners under the Central and State Boards, 265 Unani hospitals and 1,491 dispensaries.

In order to prevent misappropriation of traditional knowledge and granting of wrong patents based on traditional knowledge, a Traditional Knowledge Digital Library (TKDL) has been set up to maintain *inter alia* a database of Unani formulations in patent compatible format in the United Nations, recognized five international languages viz., English, German, Spanish, Japanese and French. This database has been made available



to International Patent Offices under non-disclosure agreement for the purpose of examining patent applications before the grant of patent. As on April 2016, the TKDL contains details of 2,92,662 medicinal formulations from the texts of Indian systems of medicine, of which 1,75,150 formulations pertain to Unani System of Medicine. The project unit of TKDL also monitors patent applications filed in different patent offices and if required submits third party objections.

National Policy on Indian Systems of Medicine and Homoeopathy 2002 stipulates the integration and mainstreaming of Unani and other AYUSH systems in the healthcare delivery system and National Health Programmes. The policy ensures provision of AYUSH healthcare facility including Unani system in primary health network. Under this scheme, Ministry of AYUSH provides financial assistance for renovation of building, procurement of furniture, equipments as well as recurring expenditure for purchase of medicines, diet, contingency etc. Department of Health & Family Welfare provides financial assistance to the States for contractual deployment of AYUSH doctors including Unani physicians at the co-located facilities. As much as 11,547 AYUSH doctors and 6,467 AYUSH paramedics including those from Unani System of Medicine have been appointed on contract at Primary and Community Health Centres with the assistance from NRHM Flexipool. In this direction, the operational strategy adopted by the Government of India is to facilitate co-location of AYUSH services under one roof in the health delivery network to provide the option to the people to avail the treatment of their choice. Various integration linked activities including capacity building of AYUSH practitioners in Reproductive and Child Health (RCH), Integrated Management of Neonatal and Childhood Illness (IMNCI), Skilled Birth Attendant (SBA) Training and School Health Programme to bring in comprehensive healthcare facilities are also undertaken under National Rural Health Mission (NRHM), which is being up-scaled as National Health Mission.

To further accelerate the growth of AYUSH and enhance its infrastructure and services, the Government of India launched the National AYUSH Mission (NAM) as a Centrally Sponsored Scheme in September 2014. AYUSH services; educational institutions; quality control of drugs; and medicinal plants form the four mandatory components of the Mission, whereas establishment of AYUSH wellness centres; introduction of Tele-medicine and sports medicine through AYUSH; innovation in AYUSH including Public Private Partnership; and provision of crop insurance for medicinal plants are some of the flexible components that have provision to get 20% funds out of the total State envelop available. The NAM aims at providing cost-effective AYUSH services and ensuring universal access through establishing, improving and upgrading the infrastructure and resources of the entire value chain of AYUSH systems.

India has emerged as the world leader in Unani System of Medicine with its widest network of well-developed quality educational institutions, comprehensive healthcare facilities, state-of-the-art research and quality drug manufacturing industries. The development of Unani System of Medicine in India has reached such a stage, where many countries are approaching for cooperation and support in this field.



Chapter 1

INTRODUCTION

The Unani System of Medicine is a medical system that deals with the management of health and diseases. It provides preventive, promotive, curative and rehabilitative healthcare with holistic approach. The fundamental framework of this system is based on deep philosophical insights and scientific principles, including the Empedoclean theory of four Elements i.e. Air, Water, Fire and Earth; four proximate Qualities (*Kayfiyāt*) i.e. Hot, Cold, Wet and Dry described by Pythagoras, and the Hippocratic theory of four Humours (*Akhlat*) - Blood (*Dam*), Phlegm (*Balgham*), Yellow Bile (*Ṣafrā'*) and Black Bile (*Sawdā'*). Admixture of different Elements and their Qualities in specific ratio in a particular entity, whether living or non-living, denominates its Temperament (*Mizāj*). Human Temperament is commonly denoted by the dominant Humour i.e. Sanguine (*Damawī*), Phlegmatic (*Balghamī*), Choleric (*Ṣafrāwī*) and Melancholic (*Sawdāwī*), which can be correlated with the Temperament of Diet, Drugs, Environmental Factors, etc. as the entities of non-human Universe being made up directly of Elements are described in terms of Qualitative Temperament. Any disturbance in the equilibrium of humours causes disease, and therefore the treatment aims at restoring the equilibrium by giving factors (including drugs) of opposite temperament. In addition, Unani System of Medicine believes that Medicatrix Naturae (*Tabī'at Mudabbira'-i Badan*) is the supreme power, which controls all the physiological functions of the body, provides resistance against the diseases and helps in healing naturally.

The Unani System of Medicine is holistic in nature and takes into account the whole personality rather than taking a reductionistic approach towards disease. Unani physicians give prime importance to diet and the state of digestion in a person, in both health and disease. Specific dietary regimens are recommended while treating patients according to their temperament. Proper diets are assumed to produce good humours (*Akhlat Ṣalīḥa*) while improper ones produce bad humours (*Akhlat Radiyya*). Thus, the humoral imbalance can be corrected by medication coupled with proper diet. The physician prescribes the drugs according to the temperament of patient, causative humour, faculty of organ involved and severity of the disease. These drugs are classified as per the specific temperament (*Mizāj*) and are graded in the first, second, third and fourth degree according to their potency.

The Unani System of Medicine offers treatment of diseases related to all the systems and organs of the human body. The treatments for chronic ailments and diseases of skin, liver, musculo-skeletal and reproductive systems, immunological and lifestyle disorders have been found to be highly effective and acceptable. The use of elatives, exhilarants, aphrodisiacs, organ-specific tonics and immunomodulatory drugs, temperament specific drugs, correctives for adverse effects, coctives and purgatives, etc. are unique features of



Unani System of Medicine. Cosmoceutics, Nutraceutics, Aromatics and corresponding therapies are important parts of treatment in Unani System of Medicine.

Despite vast development in the field of modern medicine and surgery, there is a growing global interest in traditional systems of medicine. India has incomparable infrastructure and expertise in Unani System of Medicine, and is exporting Unani drugs to various countries of the world including those where the system had its origin and initial development. The country is also promoting this system in various parts of the world through international cooperation and has signed Memoranda of Understanding with different countries covering Unani System of Medicine and established Unani Academic Chair for facilitating education and research.

1.1 HISTORICAL EVOLUTION OF UNANI SYSTEM OF MEDICINE

The Unani System of Medicine (*Yūnānī Nizām-i Tibb* or *Tibb*), as its name suggests, owes its immediate origin to ancient Greece (*Yūnān*). Since the Greeks adopted Medicine from Egypt, the roots of this system go to Egypt and its sister civilization Mesopotamia. It was further adopted by the Arabs, and was developed and improved tremendously by them. In India, Unani System of Medicine achieved marked growth enriching its practice even across the boundaries of the country in Middle East and Central Asia, and successfully applied its principles to the local geo-human environment to become one of the major traditional systems of medicine in India. In the later part of the 18th century, Unani System in India accepted modern molecular medicine, successfully maintaining its holistic, temperament-based therapy while finding a place for molecular effects of drugs. It started undertaking modern research for the molecular effects of its drugs as early as 1920s. The system also took the lead in successfully institutionalizing education and medical practice by setting up curricula, colleges and professional associations.

The herbal basis of Unani therapy can be traced back to its earliest originators in ancient Egypt, which gave primary place to plants in disease treatment. They had also initiated the use of surgery as a method of treatment. The studies of Papyri show the ability of Egyptians in the field of Medicine. Imhotep (2800 BC) and Amenhotep (1550 BC) are some noted physicians of Egyptian Period. Due to their great contributions in the field of Medicine, Mesopotamia also occupied an important place in history. They had used urine sample as a diagnostic tool. The Greek period of Unani Medicine began with Asclepius (*Asqalibūs*-1200 BC), who was a great scholar of Medicine. During Ascleopian period, the Greeks developed the art of Medicine in the light of medical knowledge of Egyptians and Babylonians.

Hippocrates (460–370 BC) (*Figure 1*) was the over-arching physician of the classical period of Unani medical history. He emphasized the natural causes of disease and recorded the existing medical knowledge to set the grounds for Medicine to develop as a systematic science. The three fundamentals of Hippocratic Medicine were observation, experience, and rational principles, which still hold valid in the field of Medicine and Science.



Chapter 1 – INTRODUCTION

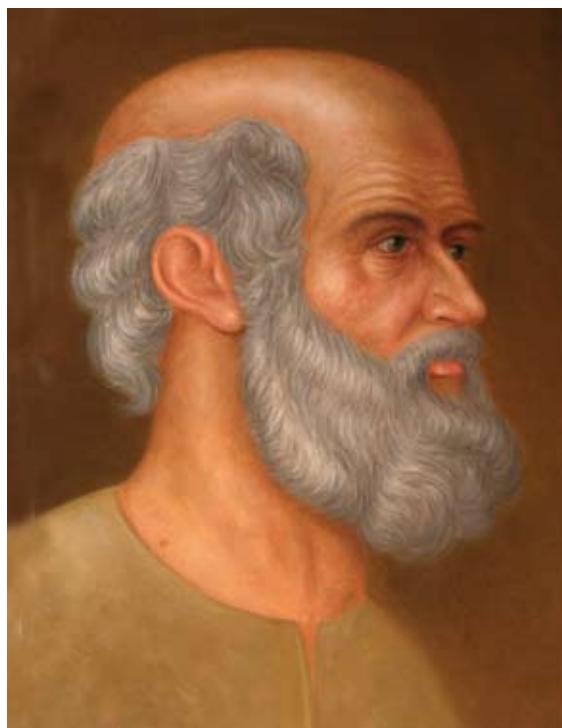


Figure 1: Portrait of Hippocrates (460-370 BC) – the father of Unani System of Medicine

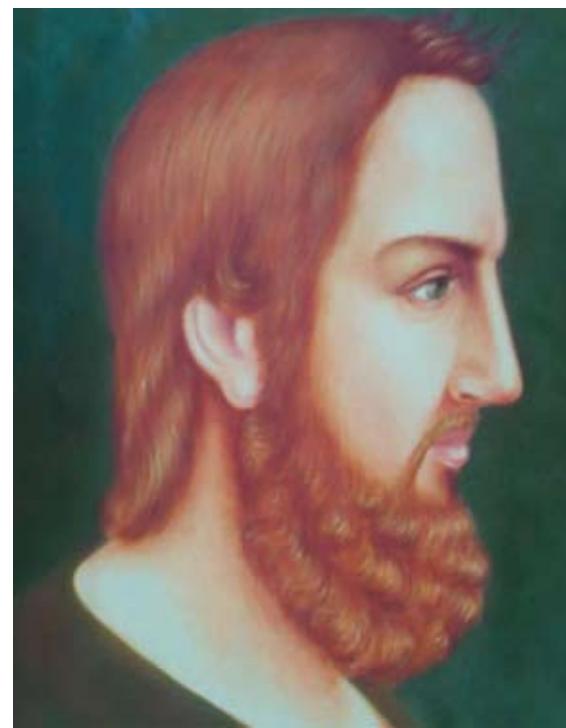


Figure 2: Portrait of Dioscorides (40-90 AD) – author of *Kitāb al-Hashā'ish*, the first *materia medica*

The Alexandrian School (*Madrasa Iskandariyya*), established in the third century BC, needs a special mention, for being the first institution to deal with dissection of human body formally. The contribution of Herophilus, Erasistratus and other physicians in the field of Anatomy cannot be ignored.

Even today, certain anatomical terms are named after Herophilus. Dioscorides (40-90 AD) (Figure 2), who had the tremendous knowledge of medicinal herbs, was the first person to write an illustrated book comprising 600 herbal drugs i.e. *De Materia Medica* (*Kitāb al-Hashā'ish*). Apart from original additions by Dioscorides, the book contained all the previous pharmacological knowledge.

The closing years of the creative age of Greece were graced by the great Roman scholar Galen (129-200 AD) (Figure 3). He not only made valuable addition to Medicine by conducting experiments but elevated it from the status of an art to the rank of a scientific discipline. Galen, one of the most illustrious scholars in the history



Figure 3: Portrait of Galen (129-200 AD) – a great commentator of Hippocratic works



of Medicine, gathered all the medical knowledge of his time, arranged it systematically in a way that continued to be authoritative for the next fifteen centuries.

After the collapse of Greco-Roman civilization, the vast Arabic-speaking world of the Middle Ages rendered great services to the mankind by its scientific and medical achievements. Although, the systematic Arabic translation of Unani medical texts started in the Umayyad period, it took the shape of a movement only at the dawn of Abbasid rule. The phase of translation work (750-850 AD) was followed by fresh researches and discoveries resulting in original writings by Arabs. The Arabian physicians performed critical study of the inherited medical knowledge, carried out their own philosophic and scientific researches and made original additions to it. Arabs contributed most in the fields of Philosophy, General Science, Technology and especially Medicine that gave Medicine a new spirit and light. During the period of Arabic enlightenment, certain schools came into prominence. Abū al-Hasan ‘Alī ibn Rabban Ṭabarī, Muḥammad ibn Zakariyya Rāzī (Figure 4), Abū Sahl Masiḥī, and Ibn Sīnā (Figure 5) were some great physicians of that period. The work of ‘Alī ibn ‘Isā is a milestone in the field of Ophthalmology.



Figure 4: Portrait of Muhammed ibn Zakariyya Rāzī (865-925 AD) – the first to differentiate smallpox from measles



Figure 5: Portrait of Ibn Sīnā (980-1037 AD) – author of *al-Qānūn fi'l-Tibb*, an encyclopaedia of Unani System of Medicine

Arabs contributed immensely to the field of *materia medica*, and this can be clearly viewed in the work of Ibn Bayṭār, named as *Kitāb al-Jāmi‘ li Mufradāt al-Adwiya wa-al-Aghdhiya* comprising 1,400 drugs. Some well-known pharmacologists of this period were Ibn Wāfid, Ibn Juljul, al-Ghāfiqī, etc. Pharmaceutical Chemistry was developed as a separate field of Science and linked with Pharmacy for the first time. The name of Geber (Jābir ibn Ḥayyān) is worth mentioning in this regard.

The quantum of development in the field of Surgery can be appreciated by going through *Kitāb al-Taṣrīf* authored



by Spanish Unani scholar, Abū al-Qāsim al-Zahrāwī (Figure 6). Obstetrics and paediatrics took a definite shape through the efforts of Arabs, who authored books on these subjects also and carried out experiments. Other Spanish scholars - Ibn Zuhr and Ibn Rushd - contributed to the development and entrenchment of Unani Medicine in Europe. After this Unani System developed in India as described in the succeeding sub-chapters.

1.2 UNANI SYSTEM OF MEDICINE IN INDIA

The Unani System of Medicine came to India in the eighth century and developed as a comprehensive medical system due to multi-pronged original contribution and new applications by scholars of successive generations. It has been practised, taught and scientifically documented in different parts of the country and flourished as a scientific medical system. The Government of India facilitated the growth and development of Unani System of Medicine by recognizing its utility and scope and integrated it into healthcare delivery system. With its wide network of quality educational institutions, comprehensive healthcare facilities, state-of-the-art research institutions and quality drug manufacturing industries and on account of its utilization by a large number of people for their healthcare needs, India has emerged as a global leader in Unani System of Medicine. The details of the historical development of Unani System of Medicine in India have been described in succeeding sub-chapters.

1.2.1 Progress of Unani System of Medicine in India

Soon after being introduced in India by the Arabs and Iranians in the eighth century, due to the wide acceptance of Unani Medicine among the masses and the patronage of the Sultans of Delhi and the Mughal emperors, it took firm roots in the soil. During the period between the thirteenth and seventeenth century, the Unani System of Medicine got established in India. During its over 1200 years' history in India, the Unani System of Medicine made major advancements to get leadership at global level, and successfully applied its principles to the Indian geo-human environment to emerge as one of the effective and commonly used local systems of medicine. The advancements in Medicine and the development of high standards of education and practice in India attracted students from Central Asia, etc. Even at present, scholars and students from



Figure 6: Portrait of Abū al-Qāsim al-Zahrāwī (936-1013 AD) – author of *Kitāb al-Taṣrīf*, which is regarded as the masterpiece on Surgery



Germany, South Africa, Canada, Kenya, Sri Lanka, etc. come to India for educational and research activities in Unani System of Medicine. The Unani System of Medicine also accommodated itself to Indian climate, temperament, culture and medicinal resources successfully and catered to the health needs of all strata of the country's population.

Unani scholar of India, Muḥammad ibn Yūsuf Harwī (d. 1542 AD) compiled a book ‘Ayn al-Hayāt on Geriatric care and anti-ageing therapy. He described more than 100 drugs and regimens to delay ageing. ‘Alī Gilānī (d. 1610 AD), Ḥakīm ‘Alvī Khān (1669-1747 AD) and Akbar Arzānī (d. 1721 AD) (Figure 7) were the key contributors to this system of medicine through teaching, practice and writing of books. The great commentary on all five volumes of Ibn Sīnā’s *al-Qānūn* was written by ‘Alī Gilānī in Arabic during Akbar’s period, which had been referred to by Unani scholars even in Iran and Middle East. Thereafter, certain new specialties of practice like prescription writing (*Nuskha Navīsī*) came up as described by ‘Abd al-Halīm in *Mufradāt ‘Azīzī*.



Figure 7: Portrait of Ḥakīm Akbar Arzānī (d. 1721 AD) – the first compiler of curriculum-based books on Unani System of Medicine in Persian

While the Arabs and Persians developed the fundamental principles and core practices of Unani Medicine, the Indian scholars explained and applied them to an extent unmatched in the lands of its origin. Ibn Bayṭār’s classical pharmacopoeia describes 1400 medicinal plants and minerals, while the largest Indian compendium by Muḥammad Najm al-Ghanī published in 1930, describes 2500 natural products. The new drugs discovered in India or adopted from Ayurveda, etc. were assimilated into Unani System of Medicine by determining their Temperament and Therapeutic Actions as per Unani principles. One good example of this enterprise is provided by *Takmila Hindī* by Shāh Ahl Allāh (d. 1762 AD). New actions of existing drugs were also discovered and an eminent contributor in this connection was Muḥammad Husayn Shīrāzī (d. 1790 AD). In the field of Pharmacy certain advancements were made and new Drug Formulations were invented e.g., the delicately palatable *Khamīra* was devised in Mughal times. Many new diseases like Syphilis and Gonorrhoea were incorporated in Unani literature and their management was described according to Unani principles. Out of 254 commentaries and explanations on the work of Ibn Sīnā on Fundamental Principles across the world, nearly 100 Arabic, Persian and Urdu treatises were authored by Indian Scholars, spanning from ‘Abd al-Fattāḥ (d. 1538 AD) to Khvāja Ridwān Aḥmad (d. 1970 AD).



The continuing creativity of Indian scholars of Unani System of Medicine is testified by the emergence of the encyclopedic author Ḥakīm A'żam Khān (1813-1902 AD) (Figure 8) in the nineteenth century, who is well known for his outstanding works in the areas of Medicine and Pharmacology viz. *Muḥīṭ-i A'żam*, *Iksīr-i A'żam*, *Rumūz-i A'żam* and *Nayyar-i A'żam*. Dā'ira al-Ma'ārif, an institution of State Government of Hyderabad systematically published Unani reference and textbooks in the nineteenth and twentieth century. Ḥakīm Kabīr al-Dīn (1894-1976 AD) (Figure 9), was an eminent educationist of his time. He translated many classical Unani works into Urdu language to keep pace with the shifting of medium of learning from Persian to Urdu and correlated the philosophy of Unani Medicine with the concepts of modern sciences. He published his work mainly through 'Daftar al-Masīḥ'. This grand exercise, which provided textbooks for the new age, was undertaken with the help of many contemporary scholars. In addition, he had been the Principal of Ayurvedic & Unani Tibbia College, Karol Bagh, New Delhi and Vice Principal of Nizamia Tibbi College, Hyderabad.



Figure 8: Portrait of Ḥakīm A'żam Khān (1815-1902 AD) – author of several encyclopedic works on Unani System of Medicine in Persian



Figure 9: Ḥakīm Kabīr al-Dīn (1894-1976 AD) – eminent educationist of Unani System of Medicine

The Unani System of Medicine maintained its traditional philosophy and got it enriched with contemporary modern molecular medicine. On the one hand, scholars like Ḥakīm Muḥammad Fīroz al-Dīn (1920s) single handedly continued the traditional style clinical verification by compiling actual contemporary prescriptions, publishing them and inviting Unani physicians to study them in their clinics and then bringing out both positive and negative reports. On the other hand, the study for molecular effects of Unani drugs was initiated to be used at a secondary level of healthcare. The Sharīfī family of Delhi, the 'Azīzī family of Lucknow and the Nizām of Hyderabad played a significant



role in the development of Unani System of Medicine during the nineteenth and early twentieth Century.

Hakīm Ajmal Khān (1868-1927 AD) (*Figure 10*) was an eminent educationist, renowned physician and great contributor for the development of Unani System of Medicine in the Indian subcontinent. He launched a programme to modernize Unani System of Medicine with radical changes in the system of education, research and practice. His keen interest to develop a model college of oriental systems of medicine led him to visit various European medical colleges. His dreams became reality in the form of establishment of Ayurvedic & Unani Tibbia College, Karol Bagh, New Delhi. Foundation of the college was laid by Lord Hardinge, the then Viceroy of India in 1916 and it was inaugurated in 1921 by the Father of Nation, Mahatma



Figure 10: Portrait of Hakim Muhammad Ajmal Khan (1868-1927 AD) – the pioneer of modern research in Unani System of Medicine



Figure 11: Hakim 'Abd al-Hamid (1908-1999 AD) – founder of Institute of History of Medicine & Medical Research, and Hamdard University, New Delhi

Gandhi. This institution is spread over an area of 35 acres of land and had all modern facilities e.g. operation theatre, isolation ward, research wing, labour room and well equipped hospital even at that point of time. This is the only institution in the country to impart education in Ayurvedic and Unani systems of medicine on parallel lines under one roof.

Hakīm 'Abd al-Hamīd (1908-1999 AD) (*Figure 11*) was an eminent practitioner who initiated modernized mass production of Unani drugs. He set up Hamdard Dawakhana for quality production of Unani drugs for domestic and global market. The Institute of History of Medicine & Medical Research, later transformed as Jamia Hamdard, New Delhi, is another salient contribution credited to him, which has grown over the years into a multi



disciplinary institution including well developed Faculty and Hospital of Unani Medicine.

In the latter half of the twentieth century, Ḥakīm M.A. Razzāq (1931-1992 AD) (*Figure 12*) emerged to make the vision of Ḥakīm Ajmal Khān a reality, especially in the area of research and scientific activities. He played a pivotal role in developing the basic infrastructure of Unani System of Medicine in the country. He was the first Director of Central Council for Research in Unani Medicine (CCRUM) from 1979 to 1991 and also served as Deputy Adviser (Unani) to Government of India. He was instrumental in giving CCRUM the present shape and in the establishment of National Institute of Unani Medicine, Bengaluru.

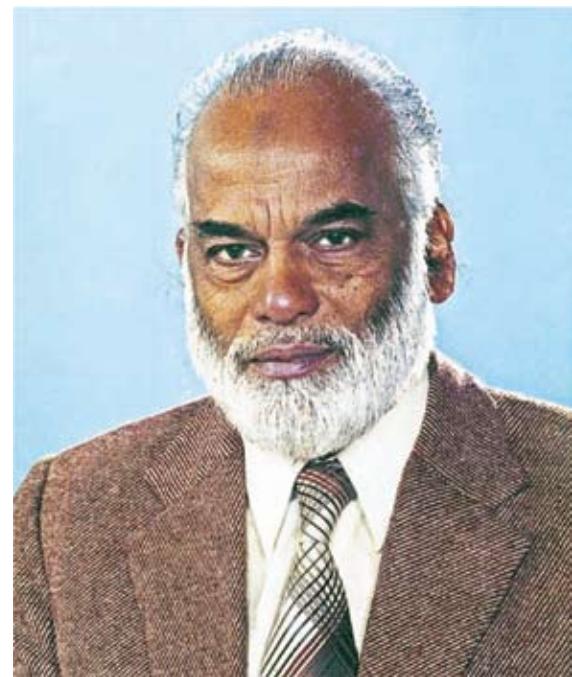


Figure 12: Ḥakīm M.A. Razzāq (1931-1992 AD) – the first Director of the CCRUM

The services of Ḥakīm Sukhānand, Ḥakīm Ihsān Allah Khān, Shifā' al-Mulk, Ḥakīm B.N. Sharmā, Ḥakīm Gurūdatt Singh Alagh and members of De Silva family are also worth mentioning in the field of Unani Practice. Education, research and drug manufacture in Unani System of Medicine got a big boost with the establishment of Ajmal Khan Tibbiya College in 1927 as a part of the reputed Aligarh Muslim University. It was the first college to offer five-year graduate degree course in 1927 and also the first to offer a postgraduate course in 1972. The college is well equipped with laboratories of Pharmacology, Pharmacognosy and Medicinal Chemistry. The University has produced more than 100 scientific theses and signed Memoranda of Understanding with many foreign institutions to work in collaboration for scientific development of Unani System of Medicine. The departments of Biotechnology, Ophthalmology and Pathology are specifically engaged in scientific exploration of Unani System of Medicine. The University has a pharmacy manufacturing quality Unani medicines marketed in India and abroad. The 'Uthmānī family of Allahabad starting from 1904 has also contributed a lot in the development of Unani System of Medicine with the establishment of Unani Medical College and Hospital. The three generations of the family have served the ailing society through Unani Medicine. Ibn Sīnā Academy, Aligarh is another notable institution in the northern part of India dedicated for collection of Unani Medicine books and manuscripts from different sources and engaged in literary research. The Niamath Science Academy of Niamath family of Chennai is also worth mentioning for its services in promotion of Unani System of Medicine.

The Indian Systems of Medicine and Homoeopathy including Unani System of Medicine got a boost in 1969 with the Government of India establishing Central Council for



Research in Indian Medicine and Homoeopathy (CCRIMH) to promote research and scientific activities. The dissolution of CCRIMH in 1978 to accord focused attention for research in individual systems led to setting up of four separate Research Councils – one each for Ayurveda & Siddha, Unani Medicine, Yoga & Naturopathy, and Homoeopathy. Initially, the Indian Systems of Medicine and Homoeopathy (ISM&H) were taken care of by a Division within the Ministry of Health and Family Welfare. In March 1995, it was replaced by a full-fledged Department of Indian Systems of Medicine and Homoeopathy in the ministry, which was renamed as Department of AYUSH in November, 2003 for overall development of Ayurveda & Siddha, Unani, Yoga & Naturopathy, and Homoeopathy systems. With the aims of providing focused attention to the development of education and research in AYUSH Systems of Medicine, the erstwhile Department of AYUSH has been elevated to a full-fledged Ministry of AYUSH with effect from 9th November, 2014.

1.2.2 Infrastructure and Network of Unani System of Medicine in India

Central Council of Indian Medicine	Central Council for Research in Unani Medicine	Pharmacopoeial Laboratory for Indian Medicine	National Institute of Unani Medicine
Regulatory authority for education and practice of Ayurveda, Siddha and Unani Medicine	Apex organization to conduct and monitor research activities in Unani System of Medicine	Lays down standards of ASU drugs and undertakes verification, analysis and testing of identity-purity quality of drugs	Apex institute for postgraduate medical education and research in Unani Medicine
Established in 1971 as a statutory body under Indian Medicine Central Council Act, 1970	Established in March, 1978 and started functioning from 10 January, 1979 as an autonomous body	Established in 1970 under the then Department of AYUSH	Established in 1984 as an autonomous organization. Academic activities in the institute started in 2004



1.3 MAJOR MILESTONES

5000 BC	Use of medicinal plants by Egyptians as recorded in the Papyri
3000 BC	Medical writings by Mesopotamian Physicians
3000 BC	Establishment of some medical schools in Egypt like Heliopolis, Sais, Memphis, Thebes and Abydos Medical Schools
3000 BC	Morphological study of the sheep's liver in Mesopotamia
1800 BC	Kahun Papyrus dealing with women's health and gynaecological disorders
1600 BC	Edwin Smith Papyrus carrying description of 48 surgical cases
1552 BC	Berlin Papyrus dealing with medical and surgical cases
1300 BC	Hearst Medical Papyrus dealing with general ailments
1200 BC	Initiation of experimental method to study diseases and their treatments by Asclepius and his descendants
580-489 BC	Pythagoras introduced the four proximate qualities - hot, cold, wet and dry and described the crisis period of diseases.
500 BC	Discovery of the first antidote by Asclepius II
490-430 BC	Concept of four elements by Empedocles
460 BC	Concept of Atomism by Democritus
460-370 BC	Concept of four humours (<i>Akhlat</i>) and medical ethics by Hippocrates
384-322 BC	Comparative study of Anatomy and establishment of Lyceum Academy by Aristotle
370-287 BC	Theophrastus founded a Herbal Medical Museum
322-283	Alexandria's Museum, Library and Medical Faculty were founded
310 BC	Erasistratus dissected human bodies and founded human physiology
305 BC	Herophilus (Father of Anatomy) dissected a large number of human dead bodies
1st Century AD	Compilation of illustrated book “De Materia Medica (<i>Kitāb al-Hashā'ish</i>)” consisting of 600 drugs by Dioscorides
200 AD	Organization of the Unani System of Medicine by Galen
400-500 AD	Establishment of Academy of Jundishāpūr, Iran
737-831 AD	Development of Pharmaceutical Chemistry by Geber
750-850 AD	Translation of Greek medical texts into Arabic
800 AD	Establishment of <i>Bayt al-Hikma</i> (House of Wisdom), Baghdad for translation and compilation of Unani Medicine related works
800 AD	Introduction of Unani System of Medicine in India



UNANI SYSTEM OF MEDICINE – The Science of Health and Healing

865-925 AD	Description of infectious diseases by Muḥammad ibn Zakariyya Rāzī
936-1013 AD	Invention and description of surgical instruments by Abū al-Qāsim al- Zahrāwī in his book, <i>Kitāb al-Taṣrīf</i>
980-1037 AD	Compilation of an encyclopedia of Unani System of Medicine Canon of Medicine (al-Qānūn fi'l-Ṭibb) by Avicenna (<i>Ibn Sīnā</i>)
1200-1526 AD	Development of Unani System of Medicine in India during Sultanate Period
1526-1857 AD	Development of Unani System of Medicine in India during Mughal Era
1595 AD	Establishment of Dār al-Shifā', the first Unani teaching hospital of Deccan founded by <i>Sūltān Muḥammad Qulī Qutub Shāh</i>
1865 AD	Initiation of a course on Unani System of Medicine by Punjab University
1891 AD	Establishment of Madrasa Ṭibbiyya, Hyderabad, founded by <i>Naवāb Mīr Maḥbūb 'Alī Khān Āṣif Jāh VI</i>
1904 AD	Establishment of Hindustānī Dawākhāna – a manufacturing unit of Unani Medicine in Delhi
1906 AD	Establishment of All India Ayurvedic and Unani Tibbi Conference by Ḥakīm Ajmal Khān
1909 AD	Establishment of Girls' Tibbi School (<i>Madrasa Ṭibbiyya Zanāna</i>) by Ḥakīm Ajmal Khān
1920 AD	Resolution of All India Congress Committee for Promotion/Official Patronage of Indian Systems of Medicine (Ayurveda and Unani)
1921 AD	Inauguration of Ayurvedic & Unani Tibbia College, Delhi by Mahatma Gandhi
1926 AD	Establishment of Research Committee and Research Unit at Ayurvedic & Unani Tibbia College, Delhi
1927 AD	Establishment of Ajmal Khan Tibbiya College, Aligarh Muslim University, Aligarh with five years degree programme of Unani System of Medicine
1935 AD	Establishment of Department of Unani Medicine (Maḥkama Ṭabābat Yūnānī) in the State of Hyderabad by <i>Mīr 'Uthmān 'Alī Khān</i> , VIIth Nizām
1952 AD	Establishment of All India Unani Tibbi Conference by Ḥakīm 'Abd al-Ḥamīd
1962 AD	Establishment of Institute of History of Medicine & Medical Research, New Delhi
1963 AD	Establishment of Ibn Sīnā Academy, Aligarh



1964 AD	Setting up of Unani Pharmacopoeia Committee by Government of India
1969 AD	Establishment of Central Council for Research in Indian Medicine and Homoeopathy
1970 AD	Setting up of Pharmacopoeial Laboratory for Indian Medicine (PLIM)
1971 AD	Enforcement of Indian Medicine Central Council Act, 1970, and establishment of CCIM
1972 AD	Initiation of Postgraduate education in Unani System of Medicine at Ajmal Khan Tibbiya College, AMU, Aligarh and Government Nizamia Tibbi College, Hyderabad
1978 AD	Establishment of Central Council for Research in Unani Medicine, New Delhi
1979 AD	Passing of Pashchim Banga Unani Medicine Act
1983 AD	Incorporation of Chapter IV-A with separate regulatory provisions for Ayurveda, Siddha and Unani Medicine in the Drugs and Cosmetics Act, 1940 and rules thereunder
1983 AD	Setting up of West Bengal State Council of Unani Medicine
1983 AD	Setting up of Indian Medicines Pharmaceutical Corporation Limited (IMPCL)
1995 AD	Setting up of Department of Indian Systems of Medicine & Homoeopathy (ISM&H) in Union Ministry of Health & Family Welfare
2000 AD	Establishment of National Medicinal Plants Board (NMPB)
2002 AD	Formation of National Policy on Indian Systems of Medicine & Homoeopathy
2003 AD	Constitution of Task Force for Unani Traditional Knowledge Digital Library (TKDL) and Launching of TKDL (Unani)
2003 AD	Renaming of Department of Indian Systems of Medicine & Homoeopathy (ISM&H) as Department of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy (AYUSH)
2004 AD	Establishment of National Institute of Unani Medicine (NIUM)
2005 AD	Mainstreaming of AYUSH strategy adopted under National Rural Health Mission (NRHM)
2010 AD	Establishment of Pharmacopoeia Commission for Indian Medicine
2011 AD	Setting up of Unani Chair at University of Western Cape, South Africa



2014 AD	Elevation of Department of AYUSH to a full-fledged Ministry of AYUSH
2015 AD	Relocation of Literary Research Institute of Unani Medicine from Jamia Hamdard to Jamia Millia Islamia and its renaming as Hakim Ajmal Khan Institute of Literary & Historical Research in Unani Medicine (HAKILHRUM)
2015 AD	Establishment of AYUSH Wellness Clinic at President's Estate, New Delhi

1.4 STRENGTHS OF UNANI SYSTEM OF MEDICINE

The basic strengths of Unani System of Medicine are its holistic approach, temperament based prescription and treatment. The use of natural drugs (mainly of plant origin), various therapeutic interventions, and regimens for prevention and treatment of diseases and health promotion is based on the concepts of holistic healing considering the individual's psycho-physical wellbeing. Rational use of Unani medicines is usually free from adverse effects. The toning up of the organs and the immune system is a unique approach of Unani Medicine known for its beneficial effects. In chronic and some of the intractable diseases, these approaches have shown much utility in improving the quality of life of patients.

Unique concept of Temperament (*Mizāj*): Unani System of Medicine believes that every individual has its own unique temperament according to his humoral constitution, lifestyle and environment. Any deviation from its normal temperament results into disease. The management of the disease depends upon the correction of altered temperament by using various regimens and drugs.

Holistic approach: For the management of a disease, Unani System of Medicine takes entire constitution of the individual and lifestyle into account for diagnosing and prescribing the treatment. Physicians select the drugs and regimens according to the temperament of the patient and nature of the disease.

Safe and radical cure of chronic ailments: The thrust area of Unani System of Medicine is the management of chronic diseases. It provides radical and safe cure for various chronic disorders, such as psychoneurotic disorders, hepato-biliary disorders, gastro-intestinal disorders and metabolic disorders.

Prevention of disease and promotion of health: Apart from treating disease conditions, Unani System of Medicine lays great emphasis on the prevention of disease and promotion of existing health through principles of six essential factors of life.

Regimenal therapy: Unani System of Medicine makes use of certain special modes and regimens of diet, physical movements, lifestyle etc. and techniques such as cupping (*Hijāmat*), leeching (*Ta'līq*), venesection (*Fasd*) etc. to eliminate the morbid humours from the body (*Tanqiya*).



Immunomodulation: Unani System of Medicine believes that the real physician is the body's intrinsic power of healing and maintaining its normal state of health (*Tabī'at*). Accordingly, a number of drugs e.g., *Khamīra Marwārīd*, *Dawā' al-Kurkum*, *Habb-i Jawāhar* etc. are available which boost up the immunity of the body. In diseases like Tuberculosis, AIDS, Cancer etc. where the long-term therapy is required, the Unani drugs, used as adjuvant, play an important role in reducing the toxicity of the synthetic drugs and in modulating or enhancing the body immunity and improving the overall quality of life.

Tonics (Muqawwiyyāt): The concept of using organ- and system-specific tonics is a unique feature of Unani System of Medicine. Unani physicians have described a number of drugs to strengthen and tone up various vital organs of the body. The literature is replete with a number of these formulations such as Cardiac Tonics (*Muqawwiyyāt-i Qalb*) - *Khamīra Ābrīsham Ḥakīm Arshad Vālā*, *Dawā' al-Misk Mu'tadil*, *Yākūtī* etc.; Nervine Tonics (*Muqawwiyyāt-i Dimāgh o A'ṣāb*) - *Khamīra Gā'ozabān 'Ambarī*, *Jawārish Jālinūs* etc.; Liver Tonics (*Muqawwiyyāt-i Jīgar*) - *Ma'jūn Dabīd al-Ward*, *Dawā' al-Kurkum* etc.; and Kidney Tonics (*Muqawwiyyāt-i Kuliya*) - *Jawārish Zar'ūnī*, *Ma'jūn Panbadāna* etc. Tonics improving digestive power (*Muqawwiyyāt-i Mi'da o Am'a'*) like - *Jawārish Āmla*, *Jawārish Maṣṭagī* etc. are also used in chronic gastrointestinal disorders.

Exhilarants (Mufarriḥāt): This is a special group of drugs which creates feeling of happiness by relaxing the mind and heart from various stresses. This group of drugs is used in the management of neuropsychiatric and cardiac disorders e.g. Anxiety, Depression, Palpitation etc. These drugs also create an overall feeling of wellbeing, which is a uniqueness of Unani System of Medicine.

Specialties: Unani System of Medicine offers successful treatment for various diseases especially the chronic ones. These include skin diseases like Vitiligo, Eczema, Psoriasis etc.; Digestive disorders e.g. Acid peptic disease, dyspepsia, Irritable Bowel Syndrome (IBS), Ulcerative colitis etc.; Respiratory disorders such as Bronchial asthma, Chronic bronchitis etc.; Musculo-skeletal disorders e.g. Arthritis and Osteoporosis; Neurological disorders e.g. Senile dementia, Paresis, Paralysis etc.; Cardio-vascular disorders such as Hypertension, Ischaemic heart disease etc.; Lifestyle and Metabolic disorders e.g. Obesity, Hyperlipidaemia, Gout, Diabetes mellitus etc. and Sexual disorders e.g. Erectile dysfunction, Premature ejaculation, Loss of libido etc.

1.5 GLOBAL SCENARIO

WHO efforts and strategies for strengthening primary healthcare have played an instrumental role in the development of traditional medicine across the globe. With Alma Ata declaration of 1978 to achieve the goal of 'Health for All' involving traditional medicine and its practitioners in primary healthcare delivery, policies and strategic interventions were designed to facilitate peoples' access to healthcare through traditional medicine, and WHO supported these initiatives in member countries with publication of technical documents and guidelines. A number of World Health Assembly resolutions



are aimed at scientific development of traditional medicine and medicinal plants for their best use in the healthcare of the populations. These developments equally impacted Unani System of Medicine. Recently, WHO has brought out a series of documents about benchmarks of training in traditional medicine including the one for Unani System of Medicine. The document contains training modules for Unani System of Medicine practitioners, pharmacists etc. to help uniform development of Unani System of Medicine education in different countries. Even at country level, some important activities have been undertaken with collaborative support from WHO with outcome document such as *Standard Unani Medical Terminology*.

Unani system is popular in different parts of the world with different names. In India, Bangladesh, Sri Lanka and South Africa it is known as Unani Medicine or Unani Tibb as it originated from Greece. In Iran, it is called as *Tibb Sunnatī* (Traditional Medicine), in Pakistan as Eastern Medicine, and in China as Uyghur Medicine. In some countries, it is also known as Islamic Medicine or Arab Medicine.

Unani Medicine has institutional framework in some of the Asian countries. In Pakistan, there are about 34 Unani colleges imparting a four-year diploma course – *Fādil-i Tibb o Jarāḥat* and a five-year degree course – Bachelor of Eastern Medicine and Surgery (BEMS). National Council for Tibb is a regulatory body for Unani System of Medicine. There are about 500 dispensaries in private and government sectors and about 100 Unani drug manufacturing units. Bangladesh offers a five-year degree course in Unani System of Medicine recognized by University of Dhaka and other universities. The country has 19 Unani colleges and about 20,000 registered practitioners. In Sri Lanka, a five-year degree course in Unani System of Medicine is run by the Institute of Indigenous Medicine, affiliated to the University of Colombo. There are nearly 750 registered practitioners of Unani System of Medicine in the country. In South Africa, the School of Natural Medicine, Faculty of Community and Health Sciences, University of Western Cape offers a four-year degree course in Unani Tibb and Unani Chair Prof. Mushtaq Ahmad has designed postgraduate course which has been approved by the University Senate. In Iran, Unani Medicine is practised as Traditional Medical System, and the Government is keenly interested in its revival and development and a number of programmes have been initiated for this purpose. There is a Traditional Medicine and Materia Medica Research Center (TMRC) established at Shaheed Beheshti Medical University, Tehran. In Kuwait, Unani System of Medicine is practised as Islamic Medicine and an Islamic Medicine Center is established. In United Arab Emirates (UAE), practice of Unani System of Medicine is allowed officially after qualifying the examination of Traditional Complementary and Alternative Medicine (TCAM) conducted by the Ministry of Health, Government of UAE.

1.6 INITIATIVES OF INDIAN GOVERNMENT IN GLOBALIZING UNANI SYSTEM OF MEDICINE

Ministry of AYUSH has the mandate to propagate Indian Systems of Medicine. The global demand of natural/herbal medicines has increased the scope of international exchange



of AYUSH-related information and cooperation with other countries for collaborative efforts in its development. The Ministry promotes the Unani System of Medicine through its International Cooperation Scheme and facilitates the following:

- i. International exchange of experts and officers
- ii. Incentive to drug manufacturers, entrepreneurs, and institutions for international propagation of AYUSH and registration of products for exports
- iii. Support for international market development and promotional activities
- iv. Translation and publication of AYUSH books in foreign languages
- v. Establishment of AYUSH information Cells/Health Centres in Indian Embassies, Missions and Cultural Centres in foreign countries and deputation of experts

International Fellowship Programme has been implemented for foreign nationals to undergo AYUSH course of study in premier Indian institutions and seats are reserved for admission of such candidates.

In order to estimate the demand of AYUSH products at international market two studies as under have been conducted.

- a) 'Need assessment study on export potential for Indian Ayurveda, Siddha and Unani (ASU) products by International Trade Center (ITC), Geneva.
- b) Study on India's export potential of AYUSH products with SAARC and ASEAN Countries by Indian Institute of Foreign Trade (IIFT), New Delhi.

Traditional Knowledge Digital Library (TKDL)

The screenshot shows the TKDL portal. At the top left is the Indian national emblem. To its right is the text "Traditional Knowledge Digital Library". Below the emblem is a small Indian flag. The main title "Traditional Knowledge Digital Library" is in a large blue font. Below the main title is a red banner with the text "Representative 500 Unani Formulations". On the left side, there is a vertical sidebar with a dark blue background and white text. It lists various categories under "UNANI" such as Home, Unani at Glance, Principles of Unani, Pharmacotherapy, Dietotherapy, Health Preservation, Regimental Therapy, FAQ, ECRUM, Clinical Research Programme, Glossary, and Related Sites. To the right of the sidebar, there are four small images of plants: Terminalia Catappa, Coriandrum Sativum, Aloe Vera, and Lasia-Spinosa. Above these images is a link to "Simple Search | Advance Search". At the bottom of the page, there is a footer with the text "Collaborative Project of Council of Scientific & Industrial Research (CSIR)" and "Department of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homeopathy (AYUSH)".

Figure 13. A webpage of Unani Medicine at TKDL Portal



India is one of those countries that recognized different traditional medical systems for healthcare like Ayurveda, Unani, Siddha, and Yoga & Naturopathy along with Homoeopathy and Allopathic medicine. Most of the knowledge about Unani Medicine is available in Arabic, Persian and Urdu languages in ancient classical literature, which is inaccessible and rarely understood to the common man, researchers and administrators. Documentation of this traditional knowledge on Unani Medicine has become imperative to preserve it and to save it from misappropriation and granting patents on non-original innovations. In 1999, the Department of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy (AYUSH) in collaboration with Council of Scientific and Industrial Research (CSIR), Ministry of Science and Technology constituted an inter-disciplinary Task Force for establishing a Traditional Knowledge Digital Library (TKDL). The project TKDL started in 2001. It provides information on traditional knowledge existing in the country, in languages and format understandable by patent examiners at International Patent Offices (IPOs), so as to prevent the grant of wrong patents. The TKDL, thus, acts as a bridge between the traditional knowledge information existing in local languages and the patent examiners at IPOs. As on April 2016, the TKDL contains details of 2,92,662 medicinal formulations from the texts of Indian Systems of Medicine, of which 1,75,150 formulations pertain to Unani System of Medicine. The project unit of TKDL also monitors patent applications filed in different patent offices and if required submits third party objections.

All India Institute of Unani Medicine (AIIUM)

Government of India plans to establish an All India Institute of Unani Medicine – the first ever in the history of Unani System of Medicine. The Institute mainly aims to promote the system at national and international level by providing tertiary healthcare. Besides setting up benchmarks for postgraduate and doctoral education in Unani System of Medicine, the Institute will promote collaborative research with various R&D institutions at national and international level. The land for establishing the Institute has been allotted in Ghaziabad.

1.7 ORGANIZATION OF THE DOCUMENT

This publication attempts to present a bird's-eye view of the status of Unani System of Medicine and its development in India and abroad. It provides an insight into the system's origin and development, philosophical strengths, treatment approaches, and the use of natural drugs. A snapshot of the infrastructure available in the country and progress made in research and development, healthcare delivery, education and training is also provided.

The first chapter starts with historical evolution of the system and lists important landmarks in the course of its development in different parts of the world, especially in India. It highlights the system's present status in India and its global scenario



while touching upon the Indian Government's initiatives and achievements about propagation of Unani System of Medicine. Strengths of the system are also discussed in this chapter.

The second chapter deals with the development of fundamental concepts, philosophies and principles of health and illness. It throws light on the life factors such as fundamental elements of human body, temperament, humours; disease process; methods of diagnosis; and principles of treatment.

The third chapter discusses Unani System of Medicine's holistic approach to human body in health and disease, and the emphasis it lays on prevention of disease and promotion of health through Six Essential Factors, and how these factors help in lifestyle management.

The fourth chapter covers therapeutic approaches of Unani System of Medicine. Different modes of treatment including regimenal therapy, dietotherapy, pharmacotherapy, and surgery are described in this chapter.

The fifth chapter is on drugs, drawn from natural sources. The chapter mentions categories of the drugs according to their potencies and explains Unani pharmaceutics, regulations for drug manufacture and licensing, standardization and quality control, development of pharmacopoeial standards, and facilities for testing of Unani drugs.

The sixth chapter covers research and development taking place in Unani System of Medicine in the country. It mainly highlights the leads that the CCRUM has obtained in fundamental research, preclinical and clinical research, drug standardization, survey and cultivation of medicinal plants, and literary research. Research papers published on these themes from the Council and other institutions are listed in this chapter.

The seventh chapter deals with education and practice of Unani System of Medicine. While describing the infrastructure available for undergraduate and postgraduate education and practice of Unani System of Medicine, the chapter makes special mention of central educational and regulatory institutions and CCIM, the statutory body that regulates education and practice in the system.

At the end of the document, books and monographs on Unani System of Medicine and important journals and websites have been suggested for further reading and understanding of Unani System of Medicine and related aspects. A glossary of important Unani terms has also been included.



Chapter 2

FUNDAMENTALS OF UNANI SYSTEM OF MEDICINE

The unique holistic approach and clinical success of the Unani System of Medicine arise from its Fundamental Principles. The most important of these principles is Temperament (*Mizāj*) which classifies human beings, diet, drugs etc. into Four Qualitative Types: Hot & Dry, Hot & Wet, Cold & Wet and Cold & Dry. There are different sets of observable parameters for identifying the qualitative Temperament in human beings, diets and drugs etc. The Temperament of a man is found by certain bodily and mental characters, for instance a Hot & Dry Temperament is associated with a lean built, excessive anger etc. The Temperament of diet, drug etc. is known by some physical characters and effects on human beings, for example, a non-succulent, pungent or salty vegetable is likely to be Hot & Dry. This allows the identification of the diet which is proper for maintaining the healthy Temperament of a human being, e.g. a person having Hot & Dry temperament should use more of a moderately Hot & Dry diet to maintain his normal temperament and remain healthy. However, Unani System of Medicine clearly mentions that the appropriate diet thus inferred should be actually tried in man and shown to maintain health before being accepted. Thus, it uses its principles only for hypothesizing an effect which has to be confirmed by experimental testing.

Disease is characterized by a pathological shift in Temperament, e.g. a Hot & Dry man becoming abnormally Cold & Wet may start suffering from severe arthritis. Using only pain-killers will just give symptomatic relief and may have side-effects. Reversing the abnormal Cold & Wet Temperament to the normal, Hot & Dry one, by using a Hot & Dry drug will cure his arthritis safely.

Treatment on the basis of Temperament has been found to be actually effective in diverse regions - from Greece to India – as shown by traditional reports and scientific clinical trials being conducted since the 1970s. Molecular level Pharmacological Testing has revealed molecular mechanisms behind the clinical effects of Unani Drugs. From the above facts it becomes quite evident that Temperament and other Fundamental Principles discovered in Unani System of Medicine reflect biological and physico-chemical reality.

The Unani System of Medicine possesses fundamental principles for all medical fields i.e. Physiology, Preventive Medicine, Pathology, Diagnostics, Pharmacology and Therapeutics. The principles related to human biology are the seven Natural Factors that make up the totality of a human being, viz. Elements (*Arkān*), Humours (*Akhlat*), Temperament (*Mizāj*), Organs (*A'dā*), Pneuma (*Arwāh*), Faculties (*Quwā*) and Functions (*Af'āl*). The imbalance in the Temperament and Humours, disorganization and discontinuity of the structure leads to the development of disease. The Unani System



of Medicine uses macroscopic parameters to diagnose the disease which comprise of clinical history, physical examination, pulse examination and inspection of excreta. The concept of treatment is based upon the removal of the causative factor (*Izāla-i Sabab*), evacuation of morbid material (*Tanqiya*) and normalization of the morbid temperament (*Ta‘dil-i Mizāj*). This is achieved as per the principles of Heterotherapy (*Ilāj bi'l-Didd*), by using the drugs and diets of opposite temperament, i.e. Drug Treatment (*Ilāj bi'l-Dawā*) and Dietary Treatment (*Ilāj bi'l-Ghidhā*), respectively. Non-drug manipulations or regimens like Bath, Massage, Leeching etc. (*Ilāj bi'l-Tadbīr*) Surgery (*Ilāj bi'l-Yad*), Psychiatric Treatment (*Ilāj Nafsānī*) and Spiritual Treatment (*Ilāj Rūhānī*) are also used.

The Unani System of Medicine enjoins Preventive Medicine, or what it calls positively as, Maintenance of Health (*Hifzān-i Sihhat*) to be more important than Treatment. This is divided into three parts: Maintenance of Health, as such (*Hifz-i Sihhat*); Regimens for Debility (*Tadābīr-i Abdān Da‘ifa*) and Prevention of Disease (*Taqaddum bi'l-Hifz*). In a completely healthy person it prescribes a lifestyle, diet and environment, appropriate for his or her Temperament, while in healthy but weak persons or healthy persons, who have become vulnerable to disease, special diets, non-drug manipulations or regimens and even drugs are prescribed to maintain health and prevent disease.

2.1 DEVELOPMENT OF CONCEPTS

There is a long history of the development of fundamental concepts in Unani System of Medicine which emerged due to the contribution and interaction of culturally and intellectually diverse civilizations. The Egyptians and Mesopotamians had a rational approach, so the idea of a basic character of human being, drugs etc. or ‘temperament’ emerged. The Greeks with their naturalistic bent of mind introduced the empirically apprehensible four basic Qualities: Hot: Cold and Dry: Wet, as the indicators of the basic and holistic character of ‘temperament’. The Qualities were posited to exist in the Four Elements described by Empedocles. The Arabs were devoted to unity and objectivity. So, on the one hand, they systematized all aspects of physiology, pathology, pharmacology, environmental influences etc. on the basis of the common and simple scheme of Hot : Cold & Dry : Wet in a fully integrated system without any gaps. This was perfected in Ibn Sīnā’s *The Canon of Medicine*. On the other hand, they made rigorous observations and experimentation. The resulting clinical and therapeutic observations are most comprehensively recorded by al-Rāzī in his gigantic work of 23 volumes, namely, *Kitāb al-Hāwī*. The Unani System of Medicine gave great importance to the Hippocratic Humoral Theory (Fourth Century BC) to emphasize the unique character of Living Things/Organic Matter and their distinction from Non-living Things/Inorganic Matter by explaining that the Elements are metabolized and converted into Humours, which are organic and possess the additional properties of living things. It describes four humours (*Akhlat*, singular: *Khilt*) and says that the Temperament of human beings depends upon the dominant humour. However, since each humour



possesses particular Qualities, it is possible to convert Humoural Temperament into Qualitative Temperament and then easily correlate human states with Drugs, Diets etc. which are described directly by Qualitative Temperament. The Arab scholars provided a strong basis for the correlation of the Hippocratic Humoral Theory with scientific Clinical Studies by discovering the Clinical Parameters of Humours which they called in Arabic as “*Ajnās ‘Ashara*” (Ten Categories). The Arabs took the Greek Pharmacology based upon the Qualitative Temperament of Drugs but they brought in Observation by discovering the physical parameters of Qualitative Temperament. They tremendously increased the role of observation and experimentation by proposing that Drugs act not only by Qualities but also by their Essence (*Sūrat Naw’iyya*) and since, unlike Qualities, the Essence cannot be known by physical parameters, the Pharmacological Actions arising from Essence can be discovered only by random empirical observation.

2.2 BASIC PRINCIPLES

The Unani System of Medicine, is successful in providing holistic treatment i.e. Radical cure without significant adverse effects. Further, it is very easy to practise and always produces the reported effects. The majority of clinical trials on Unani treatment have found them to be effective. Drugs hypothesized to be effective in new diseases on the basis of Unani principles have been found to actually work in rigorous clinical studies. Its Holism, reproducibility and ease of practice and application depends upon unique basic principles which comprises of profound but well-systematized philosophical principles that provide valuable hypotheses of holistic preventions and treatment. It also includes the mandatoriness of testing these hypotheses by rigorous scientific experimentation and observation.

The remarkable Holism of Unani System of Medicine arises from giving primacy to the Temperament of man and drug, which unlike the molecular level, is simple and can be known as a whole. Its ease of practice arises from the fact that it uses only a few parameters i.e. the primary qualities (*Kayfiyāt*) of Hot:Cold & Dry:Wet to describe the temperament of both man and drug. Its precision and reproducibility arises from the principle of clinical testing of the drugs hypothesized by Temperament, before accepting them. This clinical testing also reveals effects which cannot be deduced from the temperament or basic qualities of the drug.

The basic principles comprise of:

- The Seven Natural Factors (*Umūr Tabī‘iyya*), essential factors for the constitution of human body
- The basics of Pathology (*Kulliyāt-i ‘Ilm al-Amrād*)
- The Principles of Diagnosis (*Uṣūl-i Tashkhīṣ*)
- The Principles of Treatment (*Uṣūl-i ‘Ilāj*)



The Natural Factors (*Umūr Tabī‘iyā*)

Unani System of Medicine describes man to be made up of the following seven factors:

- a) Elements (*Arkān*): What man and the Universe, both biological and non-biological, including drugs are made up of.
- b) Humours (*Akhlāt*): The form taken up by elements in living things. Their balance is health while disbalance is disease.
- c) Temperament (*Mizāj*): It is the general quality of man, drug etc. due to the quality of dominant elements. It is used as the qualitative yardstick for measuring health and deviation from it, and for identifying the drugs that can restore the balance. It is the basis of constitutional medicine.
- d) Organs (*A‘dā*): The physical body.
- e) Pneuma (*Arwāh*): The subtle substance (i) having vitality and (ii) acting as carrier of physiological powers.
- f) Faculties (*Quwā*): The physiological powers responsible for corresponding basic functions of the organism i.e. life, nutrition, sensation, movement and reproduction.
- g) Functions (*Afāl*): Functions of various organs.

Basic Elements (*Arkān*)

Basic elements in Unani Medicine are simple undivisible matters which provide the primary components for the human body and others. They cannot be further resolved into simpler entities. The various substances (compounds) in nature depend for their existence on their chemical compositions (*Imtizāj*). Everything in the Universe is composed of four basic elements in varying amount and proportion. Each element has two sets of basic qualities (*Kayfiyāt*): Hot or Cold and Dry or Wet. The four elements are Fire (*Nār*), Air (*Hawā’*), Water (*Mā’*) and Earth (*Ard*). Their basic qualities are:

Fire	:	Hot & Dry
Air	:	Hot & Wet
Water	:	Cold & Wet
Earth	:	Cold & Dry

All things including man and drug are made up of these four basic elements combined in different amount and proportion. Each thing is characterized by a new quality arising from the proportion and interaction of its constituent elements. These individual qualities can be broadly classified into four basic groups: Hot & Dry, Hot & Wet, Cold & Wet and Cold & Dry.



Humours (Akhlāt): The Humours (Figure 14) are the liquid fundamental substance of living things, made up by the mixing and organic transformation of elements and thereby obtaining the ability to support biological processes i.e. life, nutrition & growth, sensation & movement and reproduction. The Humours are four in number and characterized by the dominant basic qualities:

Blood (Dam)	:	Hot & Wet
Phlegm (Balgham)	:	Cold & Wet
Yellow Bile (Safrā')	:	Hot & Dry
Black Bile (Sawdā')	:	Cold & Dry

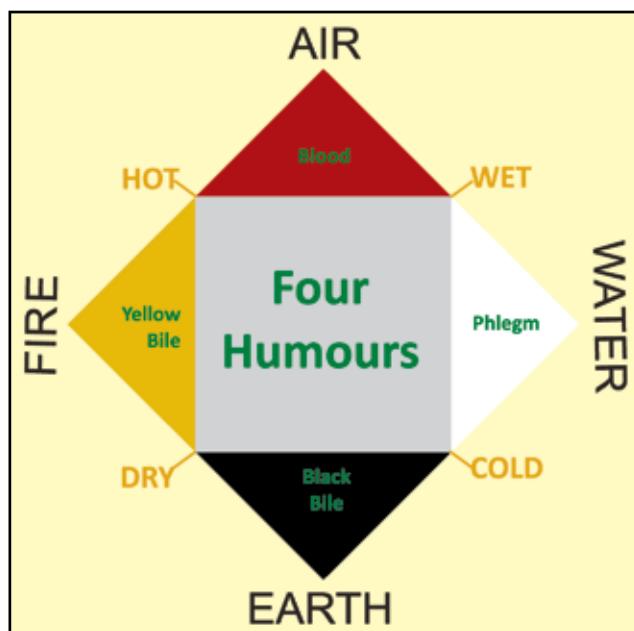


Figure 14: Schematic diagram of Humours (Akhlāt)

The Humours are formed within various organs, primarily in liver and run together in the blood vessels. They have both Subtle (*Latīf*) and Gross (*Kathīf*) components. Subtle components mix to form *Arwāh* (s. *Rūḥ*) or Pneuma while Gross components give rise to the *A'dā'* or physical organs and body. Although, each Humour (*Khilt*) is made up by the mixing of Four Elements but corresponds to a particular element on the basis of the dominant quality. Every individual has a unique humoral composition which represents his specific temperament. All human beings are accordingly classified on the basis of the dominant Humour into:

Sanguine (Damawī)	:	Air	Hot & Wet
Phlegmatic (Balghamī)	:	Water	Cold & Wet
Choleric (Safrāwī)	:	Fire	Hot & Dry
Melancholic (Sawdāwī)	:	Earth	Cold & Dry



However, these Temperaments show variations within a range depending on age, sex, race, geographical distribution, environment etc. The gross deviation from this unique balance due to any cause is disease. The diseases can be classified according to the abnormally dominant humour. The correction of imbalance by applying drugs and other factors having the opposite temperament results in cure.

Temperament (*Mizāj*): Human Beings are classifiable into four types which characterizes their entire being: body, mind and pneuma. Each type is associated with a dominant humour and named accordingly as:

Sanguine (<i>Damawī</i>)	Hot & Wet
Choleric (<i>Safrāwī</i>)	Hot & Dry
Phlegmatic (<i>Balghamī</i>)	Cold & Wet
Melancholic (<i>Sawdāwī</i>)	Cold & Dry

However, the temperament can also be described in terms of the basic qualities, as shown in the second column. A person's well-being and proper treatment, in case of falling ill, depends upon eating, living and medicating in light of his/her temperament.

Drugs, diet, geographical regions, seasons, professional milieu and even the individual organs and body parts of man etc. all are characterized by respective temperaments. So, it is possible to make the necessary correlations between the temperament of man and the temperament of these factors. However, their temperament is expressed in terms of the basic qualities, whereas, man's temperament is expressed in terms of humours, which, however, is easily translatable into basic qualities.

The temperament of man, can be diagnosed by ten categories of bodily and mental parameters (*Ajnās ‘Ashara*), e.g. complexion, texture, built, hair, dreams etc. The pathological change of temperament, in whole man or in particular body parts and organs, can also be diagnosed by changes in these parameters.

Organs (*A‘dā’*): The physical body is made up of Organs/Tissues (*A‘dā’*). They are of two types: Simple (*Basīt*) and Compound (*Murakkab*). The simple organs are tissues like fat, bone etc. while compound organs are poly-tissue structures like heart, brain, liver etc.

Pneumas (*Arwāh*): The *Rūḥ* (p. *Arwāh*) is subtle, physical substance made from the subtle components of the humours. It possesses vitality and provides life to the organism. It also acts as the seat and carrier of the physiological powers or faculties (*Quwā*) which are responsible for producing the corresponding physiological processes, e.g. nutrition & growth, sensation & movement etc.



Man possesses three pneumas, each generated in a vital organ:

Vital Pneuma (<i>Rūh Haywānī</i>)	Heart
Psychic Pneuma (<i>Rūh Nafsānī</i>)	Brain
Natural Pneuma (<i>Rūh Tabī'ī</i>)	Liver

Since, the faculties subsist in the pneuma, derangements of the temperament of the pneuma can vitiate the functions of the faculties and the restoration of the temperament of pneuma by drugs of opposite temperament will restore the function. Mind corresponds to the psychic faculty which subsists in psychic pneuma. So, Unani System of Medicine treats mental diseases mainly by using drugs to rebalance the temperament of the psychic pneuma. Thus, Unani System of Medicine is very successful in curing psychiatric diseases by treating the mind as a substance.

Faculties (*Quwā*): These are the physiological powers that give rise to corresponding physiological functions. The faculties are non-substantial powers that can exist in the organism only by subsisting in the corresponding pneuma. The primary faculties, their carrier pneuma and their functions are as follows:

<i>Quwwat Tabī'iyya</i> (Natural Faculty) • <i>Quwwat Muwallida</i> (Generative Faculty)	Natural Pneuma	Nutrition & Growth Reproduction & Propagation of species
<i>Quwwat Haywāniyya</i> (Vital Faculty)	Vital Pneuma	Life, Respiration, Circulation & Coordination
<i>Quwwat Nafsāniyya</i> (Psychic Faculty)	Psychic Pneuma	Intelligence, Sensation & Response

The faculties get drawn and attached to the corresponding pneuma as soon as the pneuma attains their proper temperament.

Functions (*Afāl*): They are the physiological functions and processes undergoing in organs and tissues due to the operation of faculties or physiological powers.

2.3 CLASSICAL UNANI RESEARCH METHODOLOGY

Unani System of Medicine not only described basic principles, extensive clinical descriptions of diseases and thousands of medicaments and formulations but it also laid down, hundreds of years ago, a precise research methodology: Treatment of a disease should be inferred by determining the temperament of a disease and the temperament of the drug to be used in particular disease. The temperament of the drug must be compatible with the temperament of the patient on the principles of Heterotherapy



(‘Ilāj bi’l-Didd) and these conclusions should be tested by rigorous scientific testing. It also had the principle that some drug effects cannot be inferred by any general theory and can be discovered only by empirical study (Figure 15 & 16). Burhān al-Dīn Nafīsī, a Unani scholar of the 15th Century says in his widely used book *Kulliyāt Nafīsī*:

“The physician requires to infer particular remedies in the light of general principles of Temperament etc. Then, whatever inference he has made from the Principles, should be practically tested, so that, if it does not prove effective he may infer another remedy (and test it). Further, certain diseases respond to remedies which are known by empirical study only”.



Figure 15: Image of the 15th century work ‘Kulliyāt Nafīsī’ mentioning necessity of Scientific Clinical Testing (Tajarba) in drug discovery

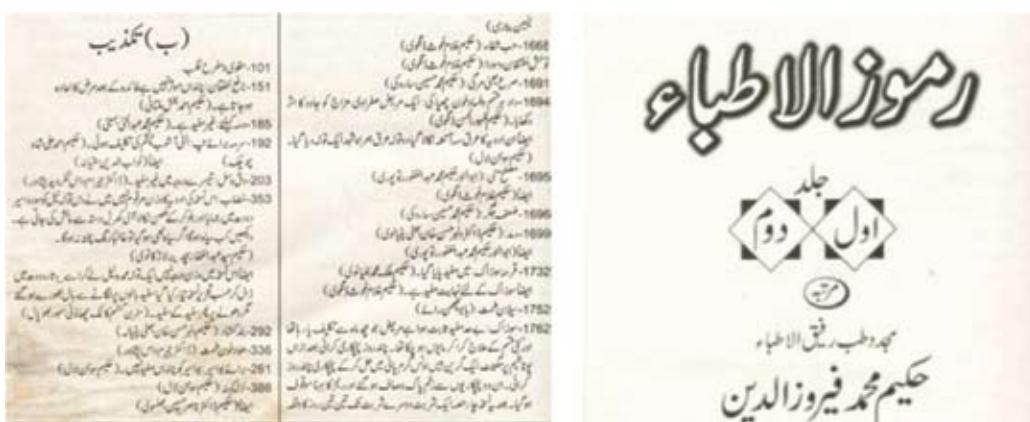


Figure 16: Early 20th Century ‘Rumūz al-Atibbā’ authored by Ḥakīm Muḥammad Fīroz al-Dīn recorded both positive and negative reports by Unani physicians about claimed effects of some herbal drugs. This indicates scientific nature of Unani literature.



Thus, it is a traditional medicine that along with having a deep and easy to apply philosophical vision, provided importance and space to empirical scientific testing. Due to effective philosophical principles, it succeeded in maintaining its philosophy-based holism.

2.4 DISEASE PROCESS

The Unani System of Medicine defines both health and disease as well as an intermediate state. In great majority of illnesses, the disease is basically an imbalance in the normal temperament and also comprises of disorganization and discontinuity of structure. However, these three basic pathologies may exist independently too.

States of the Body

According to Unani System of Medicine states of the body are grouped under three heads:

Health (*Sihhat*) in which all the functions of the body are in the range normal for a particular individual.

Disease (*Marad*) is the opposite of Health in which one or more functions or forms of the bodily organs are at fault.

Neither health nor disease (*Lā Sihhat Lā Marad/ Halat Thālitha*), in which there is neither complete health nor disease, as in the case of old people or those who are convalescing.

Disease (*Marad*)

Disease (*Marad*) amounts to a pathological condition of the body which is provoked by a cause. They are of two types:

Single disease (*Marad Mufrad*)

Complex disease (*Marad Murakkab*)

A single disease may manifest itself in any of the following three forms:

Dyscrasia (*Sū’-i Mizāj*): The temperament wherein the qualities and quantities of all the participating elements in a compound are not in accordance with what the compound is made for.

Structural diseases (*Amrād-i Tarkib*): Abnormality of Structure

Diseases of dissolution of Unity (*Amrād-i Tafarruq-i Ittiṣāl*)

Complex disease is a combination of two or more single diseases.



Cause (*Sabab*)

Cause (*Sabab*) corresponds with the aetiology. It can be defined as a specific factor which either maintain the state of the body or changes it from health to sickness or from sickness to health. Causes of diseases can be divided into two types: External causes (*Asbab Bādiya*) and Internal causes (*Asbab Bātina*). External causes are those which affect the body from outside such as excessive hot or cold climate, a polluted atmosphere, injury etc. Internal causes are those which appear and affect the body internally such as formation of stones inside the kidney or bladder.

Secondary Abnormality ('Arad)

Secondary abnormality ('Arad) arises from the basic pathology. In diarrhoea, for example, dehydration is a major secondary abnormality.

The basic pathology (*Maraq*) and the secondary pathology can be diagnosed by the particular signs and symptoms ('Alāmāt).

2.5 PRINCIPLES OF DIAGNOSIS AND TREATMENT

In accordance with its holistic vision of man and disease, Unani System of Medicine uses macroscopic parameters rather than microscopic or biochemical parameters for diagnosis. Since, its holism also takes into account the subtle level of man, therefore, Unani System of Medicine also uses subjective parameters, such as dreams. However, its diagnostic system is very sophisticated and accurate and succeeds in diagnosing diseases in a reproducible manner. Secondly, being macroscopic, it is highly economical and independent of technological paraphernalia. It also has the conceptual framework to use modern medical diagnostic means in some cases where they are useful at a secondary level. For instance, since it considers discontinuity in structure as a basic pathology, it has no hesitation in using endoscopy to see extent of gut ulceration after diagnosing the basic pathology by its macroscopic method.

The unique holistic diagnostics of Unani System of Medicine comprises of History, Physical Examination, Pulse Examination and Inspection of Excreta.

History Taking and Physical Examination (*Rūdād o Mu‘āyana*)

It is undertaken according to general parameters and the specific parameters required by the particular problem of the patient, guided mainly by the ‘Ten Fundamental Categories’ (*Ajnās ‘Ashara*).

Pulse (*Nabd*)

Rhythmic expansion and relaxation of the arteries produced by the systolic and diastolic movement of the heart is called pulse. The Pulse is fundamentally observed in the light



of ten parameters. Apart from these, some other types of compound pulses have also been described in Unani System of Medicine. Further, the specific type of Pulse in each disease is also described, mainly in the light of the general parameters.

Unani physicians judge the nature of the functional disturbance of the human system empirically by examining the pulse of a patient. This judgment is based on the experience of the individual physician.

Pulse is examined by ten features viz. size, strength, speed, consistency (elasticity), fullness, temperature, rate, frequency (constancy), regularity and rhythm. It should be noted that pulse has a rhythm similar to that of music. In music the notes are related to one another both in their pitch and time intervals. The case of the pulse is also similar because its beats are related to one another in strength and time intervals.

Unani scholars have described pulse under several headings such as normal pulse, factors governing the pulse, effects of patient factors such as sex, age, temperament and season, region and country, food and drink, sleep and wakefulness, exercise, bath, pregnancy, pain, swelling, emotions and of factors inimical to the body.

Physical Examination of Urine

Physical examination of urine helps a lot in the diagnosis, not only of uro-genital diseases but other systemic disorders also. For this following aspects are taken into account:

- (i) Quantity (*Miqdār*)
- (ii) Colour (*Lawn*)
- (iii) Odour (*Rā'iha*)
- (iv) Consistency (*Qiwām*)
- (v) Foam or Froth (*Zubda*)
- (vi) Clearness and Turbidity (*Ṣafā o Kudūrat*)
- (vii) Sediments (*Rasūb*)

Physical Examination of Stool

The physical examination of stool also helps in the diagnosis of various diseases. Colour, quantity, consistency and the presence of foreign bodies are observed during physical examination.



Principles of Treatment (Uṣūl-i ‘Ilāj)

In Unani System of Medicine, the management of diseases depends upon the pathology involved in the disease process. These principles are as under:

- **Removal of causative factor (Izāla-i Sabab):** The causative factors in the pathology of the disease process are determined and removed for the proper management of the disease.
- **Normalization of morbid temperament (Ta‘dil-i Mizāj):** The disease in which the temperament of a person is altered without affecting the quality and quantity of humours, only correction of simple morbid temperament is required. This is achieved simply by modifying the lifestyle of the patient in view of essential and non-essential factors.
- **Evacuation of morbid material (Tanqīya):** If the temperament is changed due to increase in the quantity and volume of certain humours and that morbid material in the body gets accumulated, it is evacuated by various therapies through different routes for the cure of the disease e.g. Cupping (*Hijāmat*), Venesection (*Fasd*), Leeching (*Talīq*), Concoptive (*Mundīj*) Purgative (*Mushil*) Therapy, Expectoration (*Tanfīth*), Diuresis (*Idrār-i Bawl*), Diaphoresis (*Tarīq*) etc. which are described in details in Chapter 4 (Therapeutic Approaches).
- **Heterotherapy ('Ilāj bi'l-Didd):** This is the main principle of treatment in Unani System of Medicine, in which the drug having opposite temperament to the disease is administered for the correction of morbid temperament and cure of illness.
- **Holistic approach:** In the management of the systemic diseases the entire lifestyle and the constitution of the patient is taken into account for making the diagnosis and prescribing the correct treatment. It includes habits, habitat, physical, emotional, temperamental and humoral status of the patient and condition of system/organ of the body involved.
- **Surgical and parasurgical procedures ('Ilāj bi'l-Yad):** In Unani System of Medicine, diseases of the structure (*Sū'-i Tarkib*) and breach of continuity (*Tafarruq-i Ittisāl*) are treated by using suitable operative and para-operative techniques as applied for the treatment by the Unani scholars.
- **Psychiatric Treatment ('Ilāj Nafsānī):** The Unani System of Medicine treats psychiatric diseases by using drugs, modifying mind-related processes like sleep and psychotherapy. It is able to use drugs by its discovery of the 'substance of mind' i.e. Psychic pneuma (*Rūḥ Nafsānī*) while its appreciation of the medical importance of processes, physical conditions etc., which it organizes as 'Six Essential Factors' (*Asbāb Sitta Darūriyya*), helps it closely relate sleep etc. to the improvement of psychiatric and psycho-somatic diseases. It also makes



use of psychotherapy by manipulation of mind by verbal means. But its main reliance is on drug treatment as it has discovered the subtle substance of mind and its relation with drugs due to their common temperament.

- **Spiritual Treatment (*'Ilāj Rūhānī*):** The Unani System of Medicine recognizes the role of spiritual health and treatment by discovering that the spirit is joined to the Pneuma and through them to the body, and is the supreme regulator of man. However, the Unani System of Medicine restricts itself only to the pneuma and body, and leaves spiritual treatment to religious and spiritual counselling by spiritual experts. Although, it does not oblige the physician to be a spiritual authority but culturally most physicians are also spiritually advanced and provide religious and spiritual counselling which has a powerful role in healthcare by facilitating a healthy lifestyle and by destressing the patient. The technical limitations of medicine to only pneuma and body allows people of all religious persuasions to practise Unani System of Medicine, while recognition of religious and spiritual counselling as a complementary activity permits spiritual dimension of healthcare.
- **Three primary sources of drugs (*Mawālīd Thalātha*):** In Unani System of Medicine, drugs obtained only from herbal, animal and mineral sources are used for medication. Sometimes, these drugs are used singly, and sometimes in the form of a compound of various drugs. They may be subjected to physico-chemical processing but without breaking up their natural character. Thus, Unani System of Medicine uses only natural substances in treatment.



Chapter 3

PREVENTIVE AND PROMOTIVE HEALTHCARE

The Unani System of Medicine includes the Science of Maintaining Health (*Hifzān-i Sīḥhat*). It has the methods of understanding and maintaining health in a positive and individualized manner with different guidelines for different temperaments, genders, age groups, geographical regions, seasons, occupations etc. Some of the more commonly used guidelines are summarized as: Regimens for Seasons (*Tadābīr-i Mawsam*), Regimens for Age-groups (*Tadābīr-i Asnān*), Regimens for Pregnancy (*Tadābīr-i Haml*), Regimens for Travellers (*Tadābīr-i Musāfir*) etc. The section on maintenance of health is followed by methods for preventing disease. It should be noted that it describes not only Prevention of Disease (*Taqaddum bi'l-Hifz*) but Promotion or what it calls Maintenance of Health (*Hifzān-i Sīḥhat*) as a separate discipline, which should be used even before Prevention of Disease. This is because, being holistic, it possesses a positive concept and description of health. Though, understandably quite elaborate, the section on treatment of diseases comes only after promotive and preventive guidelines.

Like treatment of disease, maintenance of health is also based upon both deeply profound principles, and rigorous testing and experimentation. As in treatment of disease, so in promotion of health and prevention of disease, the most basic principle is Temperament (*Mizāj*). In disease, treatment is done by using non-drug and drug factors of opposite Temperament, while for maintenance of health, mostly non-drug factors of the same Temperament are used.

It divides Health into three states: Stable Optimum Health, Vulnerable Optimum Health, and Debility without Disease. The first state should be maintained by a minutely described healthy lifestyle – both physical and psychic, and by a healthy environment and diet, specially tailored according to the Temperament of the individual, which is determined not only by their innate Temperament but also by their occupation, region, habitation etc.

The second and third states additionally require special diets, regimens (massage, exercise etc.) and even drugs. For maintenance of health Unani System of Medicine specially emphasises the Six Essential Factors (*Aṣbāb Sittā Darūriyya*) i.e. Air, Food and Drink, Bodily Movement and Repose, Psychic Movement and Repose, Sleep and Wakefulness, and Evacuation and Retention. Present day lifestyle-related disorders e.g. Depression, Hypertension, Coronary Heart Disease, Obesity etc., which are the major health burden of present times, can be successfully, economically and safely managed by following the instructions with regard to these Essential Factors.



3.1 HOLISTIC APPROACH TO HEALTH AND DISEASE

Unani System of Medicine is known for its remarkably effective and safe healthcare. One of its unique characters is to take into account a very wide and comprehensive range of factors: biological, sociological, geographical, psychic etc., and secondly, to integrate them into its basic classification and correlative scheme by determining their Temperament (*Mizāj*), so that the type and quantity of each of these factors, which is appropriate for an individual person, can be determined.

Thus, a Hot & Dry person will become more Hot by living in a warm region and having an occupation involving heat. So, he should take only a moderately Hot diet, indulge in only moderate exercise, and take more of sleep which is a cooling factor. The Arabian scholars who finally developed the basic principles of Unani System of Medicine were keen discoverers and open minded. So, they could discover a large number of factors by observation, as well as adopt factors discovered by other people, without any prejudice. Besides, they were highly intuitive and rational, and developed parameters for applying the principle of Temperament, originating in Greece, to newer and newer factors.

3.2 SIX ESSENTIAL FACTORS

The observational and philosophic genius of Unani System of Medicine found one of its best expressions in the Six Essential Factors (*Asbāb Sitta Darūriyya*), whose appropriate deployment in the life of a person, determined by his Temperament, ensures health. In fact, Unani System of Medicine describes all the Factors affecting health and disease, of whom those affecting all human beings perpetually are called Essential (*Darūriyya*), while the rest are called Non-essential (*Ghayr Darūriyya*). The Essential Factors cover a very wide range, and their creatively thoughtout applications or rectifications are even more numerous. For instance, pure and profuse air is essential for health. So, houses should be spacious, and cities should have gardens. On the other hand, unavoidable problems can be managed by using corrective factors, e.g. health hazards of living on damp river-banks can be avoided by including anti-phlegmatic herbs as spices in the diet.

These Six Essential Factors are remarkable in providing such six categories that can include a very large number of factors, which may outwardly be quite distant to each other. Thus, one of the six Factors is 'Movement and Rest,' health being dependent on movement and rest appropriate to the Temperament of a person. Movement is both active and passive, practices like Swinging (*Urjūha*) also serve as exercise, which even a paralytic person can undertake. Further, exercise is needed not only for muscles but for the senses also, in fact for all organs: the exercise of vision being to gaze at beautiful objects and scenes and at intricate patterns, while the exercise of hearing being listening to music and songs. This shows the genius of Unani scholars to discover very large number of factors as well as simple schemes that could classify them into a very small number of categories, thus allowing easy application.



It should be noted that the ‘Six Essential Factors’ are used not only for maintaining health and preventing diseases, but also for treating diseases. Departing from principles of these factors results into disease, and following them through various modes of Regimenal Therapy (*Ilāj bi'l-Tadbīr*), including Massage (*Dalk*), Exercise (*Riyādat*), Turkish Bath (*Hammām*), Cupping (*Hijāmat*), Venesection (*Fasd*), Leeching (*Ta'līq*) etc., Pharmacotherapy (*Ilāj bi'l-Dawā'*) and Dietotherapy (*Ilāj bi'l-Ghidhā'*), helps restore health.

Air (*Hawā'*)

Air is the most crucial factor for life. It helps in the production and maintenance of Pneuma, which is the source of vitality. The discovery of oxidative energy production, dependent on atmospheric oxygen, has revealed one aspect of vitality at the molecular level. Secondly, Air is the medium of most of the external factors affecting life and health, e.g. the seasons with their different heat and cold influence human beings by affecting the Temperament of Air which is taken in by breathing. Similarly, subtle, gaseous and even particulate things like chemical and biological pollutants etc. alter the Temperament of Air to harm the health of man.

Unani System of Medicine uses Air in prevention and treatment chiefly by taking into account the seasonal variations in Air. For instance in summer, Air becomes more hot, so cold food and moderate movement and exercise should be adopted to remain healthy.

Food and Drinks (*Ma'kūl o Mashrūb*)

Food is second only to Air in maintaining life and health by replacing the body's used-up and broken-down components (*Badal mā Yatahallal*). Keeping in view the importance of Food, Unani System of Medicine makes extensive use of diet both for promotion of health and treatment of disease. It has been very successful in identifying the appropriate Food by using the principle of Temperament. A healthy man should use mainly the food of the Temperament similar to his own Temperament. However, if he is threatened with a pathological shift in his Temperament, he should use food of the opposite Temperament. Thus, in spring when increasing hotness of Air threatens to unbalance his normal Temperament, cold Food like pomegranate preparations (*Rummāniyya*) should be used by a man of Hot Temperament.

Unani System of Medicine brackets drinks with Food, because despite lacking nutrition, water is crucial since Food becomes effective only in solution. So, it provides extensive guidelines for the type of water and the appropriate time for drinking it. For instance, in order to ensure proper digestion, people of Hot Temperament should drink water during meals, but cold Temperament persons should use water only after the digestion has fully set in.



Bodily Movement and Repose (*Harakat o Sukūn Badanī*)

The Unani System of Medicine gives great importance to both appropriate Movement and Rest for maintaining health and curing disease. Movement is necessary for evacuating waste products, and Rest is needed for retaining nutrients till the completion of digestion. Unani System of Medicine offers a wide concept of Exercise of all organs. It classifies Movement into two types: high frequency and intensity with short duration, which increases Heat; and low frequency and intensity with long duration, which increases metabolism. It recommends Moderate Exercise, which produces moderate sweating, but discourages Intense Exercise, which produces profuse sweating. It even considers Massage (*Dalk*), Turkish Bath (*Hammām*), Slow horse riding and Swinging (*Urjūha*) as Moderate Exercise, and prescribes the latter for paralytic persons. Boat ride is prescribed for treating Chronic Diseases like Leprosy and Dropsy.

Psychic Movement and Repose (*Harakat o Sukūn Nafsānī*)

The Unani System of Medicine fully recognizes the role of psychic states in maintaining health and treating disease. Unani Medicine describes Mental States basically in terms of the Movement and Repose of Pneuma. Its Movement increases Heat while Repose increases Cold. So, excessive Movement or Repose of Pneuma causes Hot and Cold pathologies. For instance, extreme anger moves the Pneuma to the exterior, making both Pneuma and the body abnormally Hot, which may give rise to Hot mental and bodily maladies e.g. Mania and Epistaxis, respectively. On the contrary, extreme fear makes the Pneuma flee to the interior and the resultant Cold can give rise to Loss of Consciousness and Bradycardia.

Thus, these pathologies can be managed both by altering the mental states and by administering Cold or Hot drugs. This is the basis of the unique and successful Psychopharmacological management of Psychiatric and Psychosomatic diseases in Unani Medicine.

In addition to considering the Pneuma as basic to Mental States, Unani Medicine considers the Heart and the Brain to be specially relevant, as Heart is the seat of Pneuma (*Rūh*) and the Soul (*Nafs*), while Brain is the seat of Psychic Faculties (*Quwā Nafsāniyya*). So, Mental States - described by Unani Medicine in terms of Psychic Movement and Repose – specially affect Heart and Brain Function. It must also be appreciated that since Unani Medicine considers Heart Function to be basically the maintenance of Vitality (Energy and Immunity), it describes close correlation of Mental States with Immunity.

Avicenna (Ibn Sīnā) also states that in addition to affecting Hot or Cold Quality of man, some Psychic states have specific effects also, e.g. observing a sour food can make the teeth feel this taste. This phenomenon is used as the basis of Psychotherapy, e.g. ending hysterical paralysis by making a provoking statement.



Sleep and Wakefulness (*Nawm o Yaqza*)

Sleep is necessary for preserving Pneuma and Vitality and providing replacement of wear and tear (*Badal mā Yataḥallal*), while Wakefulness is necessary for voluntary functions. Since they resemble Repose and Movement respectively, excess of Sleep increases Coldness and Wetness, while excess of Wakefulness increases Hotness and Dryness. Therefore, moderation should be exercised with regard to them. Just as Wakefulness helps voluntary functions, particularly intellectual functions, Sleep helps digestion. So, the Digestion of Hot Food is more dependent on Sleep.

Evacuation and Retention (*Istifrāgh o Iḥtibās*)

Evacuation is needed for removal of waste products which may cause obstructions or embolism and toxicity. Retention of nutrients etc. is needed not only for full digestion and metabolism but also to maintain reserves of nutrients and essential substances. Evacuation takes place by defecation, micturition, coitus, sweating etc. Unani System of Medicine puts great emphasis on proper evacuation and prescribes mild laxatives like beet root soup for managing mild constipation. It also encourages all those activities in moderation that lead to evacuation, e.g. coitus Turkish Bath.

3.3 LIFESTYLE MANAGEMENT

The Unani System of Medicine puts great emphasis on Lifestyle Management for promotion of health and prevention and treatment of disease. Therefore, it is of immense relevance to present times as lifestyle diseases like Hypertension, Diabetes, Depression. are imposing the greatest burden on healthcare. Unani Medicine provides very comprehensive, specified and individualized guidance for this purpose.

The Unani System of Medicine integrates both external environment like Seasons, Air Purity, Food and Drinks, as well as internal environment i.e. movement and rest, sleep and wakefulness, evacuation and retention etc. It regulates both bodily states as well as psychic and mental states. It has invented very ingenious interventions in these areas, such as Swinging (*Urjūḥa*) and Boat Riding as an exercise for weak persons and paralytics. It has given a wide concept of Exercise by including under it the use of the Five Senses and undertaking the function of all organs and systems, such as thinking, imagining, breathing and coitus. Most importantly, it has correlated all these factors with each other and with human beings by discovering their Temperament (*Mizāj*). Thus, it can individualize the appropriate quality and quantity of Diet, Bodily Movements, Mental Activity etc. for each individual, period of life i.e. Childhood, Old Age, Gender, Season etc. Assignment of Temperament to all factors also allows substituting one factor by another if the former is not under control, e.g. the effect of Seasons or Psychic States can be moderated by Diets, Drugs, Clothing, Exercises, Massage, Bathing etc. So, by describing the Healthy State and Disease in terms of a Normal Temperament and a Pathological Temperament, and by assigning Temperament to Drugs and to a very



wide range of environmental factors, such as Diet, Season, bodily and mental activity etc. Unani Medicine provides multifactorial guidelines to successfully maintain health by using same Temperament factors in Health and opposite Temperament factors in Disease.

Both promotion of health and treatment of disease can be done to a great extent by non-drug factors, which are safer, cheaper and more easily employed than drugs. On account of its ability to undertake health promotion and disease prevention by non-drug lifestyle factors, the Unani System of Medicine is of great relevance to present-day healthcare, as lifestyle related diseases like Hypertension, Diabetes, Depression etc. make up great burden for healthcare nowadays.

Prophylactic Drugs

Although, prophylaxis by non-drug factors is an obvious strong point of Unani System of Medicine, the presence of prophylactic drugs is no less important as many serious prophylactic objectives require potent interventions which obviously can be provided only by drugs.

Unani System of Medicine prescribes a large number of drugs for preventive purposes. Some of them can be considered rather general as the indications for their use are general factors, such as climatic characters, seasonal variations, age and occupation. For instance, *Smilax chinensis* (*Chob chīnī*) is used in healthy people when they enter the middle age period of 40 to 50 years. The procedure of administering the drug is accompanied with the precautions of not using cold foods and drinks. The use of Honey and *Crocus sativus* (Saffron) is also an example of prophylactic medications to protect the body from ill-effects of cold climate. Some other prophylactic drugs are: *Glycyrrhiza glabra* (*Aşl al-Sūs*), *Coriandrum sativum* (*Kishnīz*) and *Berberis vulgaris* (*Rasavt*).



Chapter 4

THERAPEUTIC APPROACHES

Treatment is adopted when prevention fails and disease occurs. It is mainly based upon Heterotherapy ('Ilāj bi'l-Didd). Disease, which amounts to the emergence of an abnormal Temperament, is treated by applying drugs and non-drug factors with opposite Temperament. Since, environmental factors, diet and even mental states etc. either themselves possess a Temperament or affect the Temperament, the Unani System of Medicine uses these non-drug factors very frequently and extensively, on the basis of this correlation. The Unani System of Medicine has also discovered some Specific Drug Effects, arising from Essence (*Şūrat Naw'iyya*) and not from the Qualities (Temperament). Therefore, it uses these Specific Drugs (*Adwiya Dhū al-Khāṣṣa*) also, particularly in serious diseases, as these drugs are generally more potent. The Unani System of Medicine also uses Surgery ('Ilāj bi'l-Yad), including Ophthalmological, Gynaecological and Obstetrical Surgery.

Unani System of Medicine describes following modes of treatment:

- Regimenal Therapy ('Ilāj bi'l-Tadbīr)
- Dietotherapy ('Ilāj bi'l-Ghidhā')
- Pharmacotherapy ('Ilāj bi'l-Dawā')
- Surgery ('Ilāj bi'l-Yad)

However, the first preference of treatment is given to regimenal therapy and diet, and drugs and surgery are used only if required.

4.1 REGIMENAL THERAPY

Regimenal therapy ('Ilāj bi'l-Tadbīr) is one of the most popular methods of treatment practised by Unani physicians since antiquity. Literally, *Tadbīr* is an Arabic word meaning 'regimen' or 'systematic plan' whereas '*Ilāj*' means 'therapy' or 'treatment'. Thus, '*Ilāj bi'l-Tadbīr*' means treatment through regimen, by which care of the sick person is taken and the general health is maintained. In this way, Regimenal therapy comprises mostly non-medicinal procedures by which the lifestyles for preservation of health and treatment of disease are modulated. Ancient Unani physicians, e.g. Hippocrates, Galen, Rhazes, Avicenna and Albucasis, have described various regimens for the management of diseases, either independently or in combination with other therapies. These include changes in diet, physical exercise, lifestyle modification and measures to eliminate the morbid humours (*Tanqīya*) from the body or divert them (*Imāla*) by Cupping (*Hijāmat*), Massage (*Dalk*), Leeching (*Ta'līq*), Venesection (*Faṣd*), Purgation (*Ishāl*), Emesis (*Qay'*),



Diuresis (*Idrār-i Bawl*), Enema (*Huqna*), Diaphoresis (*Ta'riq*), Expectoration (*Tanfīth*), Counter Irritation (*Ilām*), Sitz Bath (*Ābzān*) etc. Some other regimens are also used for elimination/diversion of morbid material or resolution of the inflammation, e.g. Turkish Bath (*Hammām*), Irrigation (*Natūl*) and Fomentation (*Takmīd*).

Cupping (*Hijāmat*)

Hijāmat (Figure 17) is literally derived from an Arabic word ‘*hajam*’ which means “to suck”. It is a technique in which a cup is applied over the surface of skin by creating vacuum, and it is known as dry cupping (*Hijāmat bilā Shart*) (Figure 18). Sometimes, scarification is done at the location of cupping to draw blood from the body part to relieve internal congestion, and this process is known as wet cupping (*Hijāmat bi'l-Shart*) (Figure 19).

The objectives of Cupping are as follows:

- To eliminate/divert the morbid material
- To enhance the blood supply and correct cold temperament or to rectify the temperament of a particular organ
- To achieve antispasmodic and detoxifying effect
- To evacuate waste products through skin

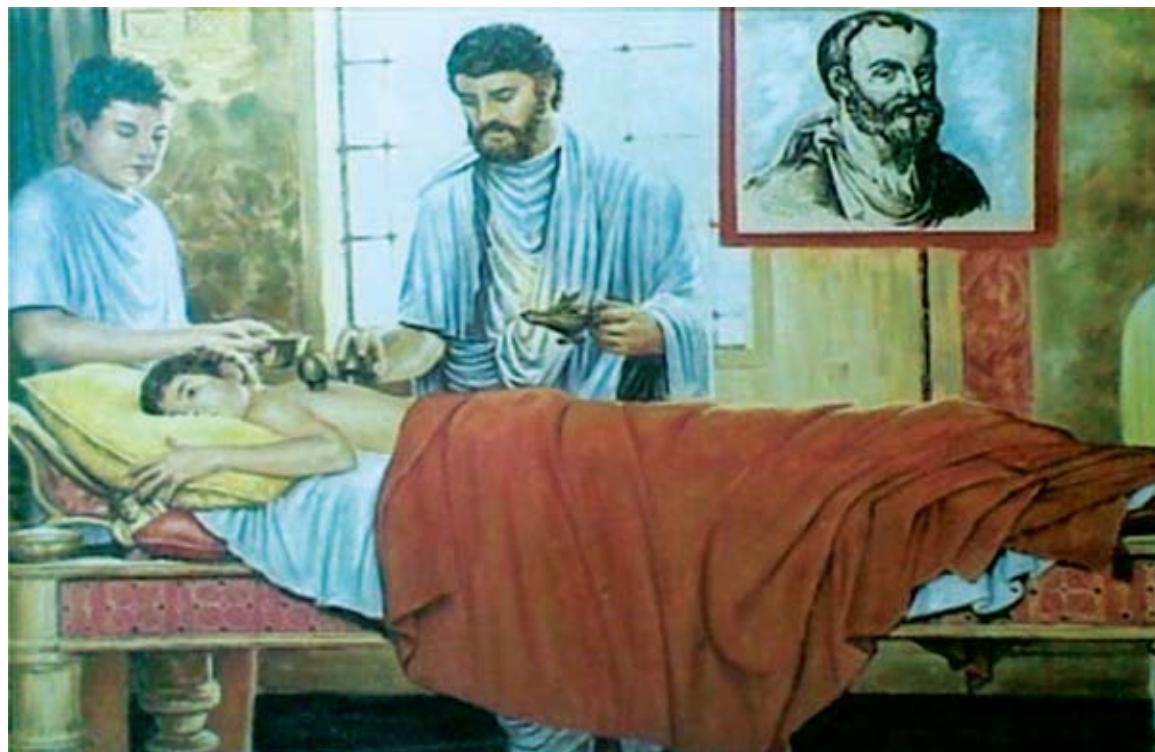


Figure 17: Galen performing cupping (*Hijāmat*)



Figure 18: Dry cupping (Hijāmat bilā Shart)



Figure 19: A physician of CCRUM applying Wet cupping (Hijāmat bi'l Shart) on a patient.

Leeching (Ta'liq)

Leeching (Ta'liq) (Figure 20) is a method of elimination of morbid matter (*Mawād Fāsida*) from the body. In this procedure, Leeches are applied on the affected part to suck the blood from deeper tissues. During this process, the leeches also infuse their saliva into the blood, which is a complex mixture of different biologically and pharmacologically active substances. Recently, various studies have been conducted to validate these methods in various diseases, e.g. Arthritis, Hypertension and skin disorders.

Venesection (Faşd)

Venesection (Faşd) is a method of absolute elimination (*Istifrāgh Kullī*) used to remove the excess of humours or to get rid of morbid matter (*Mawād Fāsida*) from the body. In this procedure, an incision is given to the superficial veins and blood is allowed to flow. The objectives of the procedure are as follows:

- To remove excess of humours
- To prevent toxicity and accumulation of waste material in blood
- To excrete waste material from various parts of the body
- To stimulate metabolic processes
- To correct altered temperament



Figure 20: Leeching (Ta'liq) on a frostbite patient



Turkish Bath (*Hammām*)

Hammām is derived from the word ‘*Hamm*’, which means “to bathe”. In fact, *Hammām* is a place used for bathing, consisting of several rooms with one room leading to the other with specific provisions and conditions customized according to the disease to be treated. The objectives of Turkish Bath are as follows:

- To reduce viscosity of the humours
- To improve health in the debilitated individuals
- To increase innate heat of the body
- To improve metabolism
- To evacuate waste products through skin
- To treat paralysis and muscular wasting
- To strengthen the body
- To cure obesity

Massage (*Dalk*)

Massage (*Dalk*) is a manipulation of superficial and deeper layers of muscle and connective tissues using various techniques, to enhance body functions, healing process, and promote relaxation and well-being. Various types of *Dalk* have been recommended in Unani System of Medicine for the management of various disorders e.g. *Dalk Šulb*, *Dalk Layyin*, *Dalk Kathīr*, *Dalk Qalil*, *Dalk Mu'tadil*, *Dalk Khashin* and *Dalk Amlas*. The objectives of *Dalk* are as follows:

- To increase weight
- To relieve psychosomatic disorders
- To relieve backache, headache and muscular pain

Physical Exercise (*Riyādat*)

Physical exercise (*Riyādat*) is any voluntary movement of body or its part that enhances or maintains physical fitness and overall health. It plays an important role not only in maintaining good health and prevention of diseases but also in curing certain ailments. The objectives of physical exercise are as follows:

- To improve metabolism
- To tone up the organs/systems
- To maintain or improve flexibility, co-ordination and balance of the musculoskeletal system



- To strengthen the body as a whole
- To relieve anxiety, insomnia and depression
- To remove waste products from the body

Diuresis (*Idrār-i Bawl*)

Diuresis (*Idrār-i Bawl*) is a process in which formation and excretion of urine is increased for the management of bodily ailments. It is one of the important processes adopted for evacuation of morbid matter from the body through urine. Diuresis can be induced by adopting specific methods like exposure to cold, drinking of cold water and intake of plenty of fluids. It can also be induced with the help of certain drugs that have been mentioned in classical Unani literature under the heading of Diuretics (*Mudirr-i Bawl*). The objectives of Diuresis are as follows:

- To excrete waste products and excess of humours through urine
- To purify blood and evacuate morbid humours
- To manage diseases of heart, kidney and liver

Purgation (*Ishāl*)

Purgation (*Ishāl*) is a method of elimination of waste and morbid matter from the body through rectum. During this process, the frequency of stool is increased by decreasing the absorption of water in the intestines, by increasing the peristaltic movement or both.

Emesis (*Qay'*)

Emesis (*Qay'*) is the evacuation of gastric contents through mouth. The main purpose of emesis is to eliminate toxic/morbid material from the upper gastro-intestinal tract. The objectives of emesis are as follows:

- To manage gastro-intestinal diseases
- To manage diseases like Headache, Migraine, Melancholia etc.

Diaphoresis (*Ta'rīq*)

Diaphoresis (*Ta'rīq*) is a process of induced sweating. It is instrumental in liquifying the sticky and adherent humours lodged in the peripheral tissues. The objectives of diaphoresis are as follows:

- To excrete waste matter from the skin
- To reduce excessive heat



- To divert morbid material from kidney to the skin
- To purify blood
- To improve dermal nutrition and enhance body texture

Cauterization (Kayy)

Cauterization (Kayy) is an effective method of treating several conditions e.g. destructive lesions, removal of putrefactive matter, stoppage of bleeding etc. Unani physicians have been using this method over the centuries. The instrument used for cauterization is called as cautery (*Mikwā*), preferably made up of gold.

Concoptive and Purgative (*Mundij o Mushil*) Therapy

It is the main method of treatment for chronic diseases in Unani System of Medicine. It is actually meant for evacuation or elimination (*Istifrāgh*) of morbid humours from the body. Morbid humours are mainly responsible for aggravating the disease process if they remain stagnant in the body. Abnormal humours are evacuated from the body by a method known as *Istifrāgh*. Sometimes the matter is too thick or too thin to be eliminated properly. Therefore, some drugs are used that change the consistency of the morbid humour and make it suitable for elimination. Such drugs are known as concoctives (*Mundijāt*). For each humour, specific concoptive drugs are used to make the morbid humour able to be evacuated. For example, in phlegmatic diseases *Lavandula stoechas* (*Uṣṭūkhūdūs*) is used as a concoptive. Once the features of 'Nudj' are established in the respective humour, it is followed by purgation (*Ishāl*).

Psychiatric Treatment ('Ilāj Nafsānī): Unani System of Medicine has emphasized the importance of psychiatric and psychological factors including spiritual values in the management of various diseases. The therapy complements conventional medicine by treating the whole person - mind, body and spirit. This therapy has been described under the heading of Psychiatric Treatment ('Ilāj Nafsānī). The benefits of the therapy may be felt on physical and emotional level. Unani physicians have described the psychiatric treatment for various psychotic and psychosomatic disorders such as Anxiety neurosis. However, Unani System of Medicine uses drugs very effectively in Psychiatric Diseases. This is so because the Unani counterpart of Mind is Psychic Pneuma (*Rūh Nafsānī*) which is made up of subtle matter and possesses Temperament. Therefore, the psychiatric diseases are characterized by various pathological Temperaments and can be easily treated by drugs of opposite Temperament.

4.2 DIETOTHERAPY

Unani System of Medicine lays great stress on treating certain ailments by administration of specific diets or by regulating the quality and quantity of food. In addition to



nutritional properties, various foods have pharmacological actions too. For example, many foods are laxative, diuretic and diaphoretic.

The weakness of certain organs is corrected by administering the same organ of an animal by way of food; for instance, disorders and weakness of liver are treated by including the goat liver in the patient's diet. Likewise, heart, kidney and brain are recommended in the respective organ's treatment.

4.3 PHARMACOTHERAPY

According to Unani System of Medicine, the choice of drugs for treatment is governed by three laws: (i) Quality of drug in terms of Temperament, (ii) Quantity of drug in terms of its weight and potency and (iii) Time of administration. The selection of drug depends on the nature and type of the disease. The proper drug is one that is contrary to the nature and qualitative pattern of the disease i.e. its pathological Temperament. The weight and potency of the drug is determined by the nature of the organ; severity of the disease; and other related factors such as sex, age, weight, habit and habitat, season, built, previous treatment, and stage of the disease.

The Unani System of Medicine states that the drugs have their own particular temperament due to their specific constituents. Concoctive drugs (*Mundij Adwiya*) are used to prepare the morbid matter for excretion, whereas Purgative drugs (*Mushil Adwiya*) are used to remove morbid matter through intestine.

Unani drugs are used in different forms e.g. powder (*Safūf*), decoction (*Joshānda*), infusion (*Khīsānda*), tablet (*Qurs*), semisolid preparations (*Jawārish*, *Ma'jūn*, *Khamīra* etc.). In '*Ilāj bi'l-Didd*', drugs having qualities and temperament opposite to those present in the diseases should be administered. '*Ilāj bi'l-Dawā'* has been described in detail in Chapter 5 entitled 'Drugs'.

4.4 SURGERY

Surgery ('*Ilāj bi'l-Yad*') has always been a part of treatment in Unani System of Medicine since ancient times. Abū al-Qāsim al-Zahrāwī, an Arab Unani physician, wrote a book entitled *Kitāb al-Taṣrif li-man 'ajiza 'ani'l-Ta'lif* with illustrations of surgical instruments (Figure 21), consisted of 30 volumes on topics of medicine, surgery, pharmacy and other health sciences. The last volume, comprising 300 pages, is dedicated to Surgery. He treated Surgery as a separate subject for the first time in the history of Medicine. He described several procedures, inventions and techniques, including thyroidectomy, extraction of cataracts, removal of kidney stones, tonsillectomy, tracheotomy, craniotomy, caesarian section, dentistry etc. In Unani System of Medicine, certain categories of drugs are used in cases needing surgical interventions, e.g. antiseptic drugs (*Dāfi'-i Ta'affun Adwiya*) - *Cinnamomum camphora* (*Kāfūr*), *Azadirachta indica* (*Nīm*), *Santalum album*



Figure 21: A page from book Kitāb al-Taṣrīf li-man ‘ajiza ‘ani'l-Ta'lif showing some surgical instruments.

(Sandal) etc.; Styptic drugs (*Habis-i Dam Adwiya*) - Alum (*Shibb Yamānī*), *Quercus infectoria* (*Māzū*), *Polygonum bistorta* (*Anjibār*) etc.; Wound healing drugs (*Mudammil-i Qurūh Adwiya*) - *Dracaena cinnabari* (*Dam al-Akhwayn*), Soap stone (*Sang Jarāhat*), Red Ochre (*Gerū*) etc.; Anaesthetics (*Mukhaddir Adwiya*) - *Datura innoxia* (*Jawz al-Māthil*), *Hyoscyamus alba* (*Ajvā'in Khurāsānī*), *Lactuca sativa* (*Kāhū*) etc.; Analgesics (*Musakkin-i Alam Adwiya*) - *Colchicum autumnale* (*Suranjān*), *Conium maculatum* (*Shūkrān*), *Syzygium aromaticum* (*Qaranful*); and Cicatrizants (*Khātim Adwiya*) – calcified shell (*Şadaf Sokhta*), Slaked lime (*Āhak Maghsūl*), Nummulite (*Şadınaj*) etc.



Chapter 5

DRUGS

The Unani System of Medicine describes the general character of a drug in terms of its Temperament. By correlating it with the temperament of the disease, it is able to eradicate the disease as a whole i.e. achieve holistic treatment. Since the temperament of the drug indicates its pharmacological actions, e.g. a Hot & Dry Drug may be Lithotryptic (breaking of renal stone), and the temperament can be determined by physical properties such as taste etc. and by the effect on temperaments in human beings, it is possible to propose or hypothesize the actions of a drug by the simple means of determining its temperament. However, Unani System of Medicine enjoins that the pharmacological action thus hypothesized on the basis of temperament should be clinically tested before being recommended as treatment. In addition to Temperament, a second basis of pharmacological actions is also described i.e. the Essence (*Sūrat Naw'iyya*).

Secondly, the Unani System of Medicine uses only natural products as drugs. This is one of the basic reasons of its safety. However, it discovered and used advanced chemical processing e.g. distillation, sublimation etc. for drug formulation which increase their selectivity, efficacy and palatability. But, care is taken not to disturb the basic natural character of drugs. Thus, Unani System of Medicine is unique in achieving a golden balance between naturality and physico-chemical processing, and obtains the benefits and advantages of both.

India has a rich repository of flora and fauna, which are used as drugs in Unani System of Medicine. The drugs that are not available in India are imported from other parts of the world. In spite of great advances made in modern medicine during the last few decades, plants still have an important role in healthcare. It is estimated that about 25 percent of all the allopathic drugs are directly or indirectly derived from the plants. In some particular cases, such as antitumor and antimicrobial drugs, about 60 percent of the medicines currently available in the market are from natural products. This underscores the efficacy of natural products. The Unani System of Medicine uses the natural products as a whole rather than their active ingredients. This makes Unani treatment safe, efficacious and easily available; and hence widely acceptable.

In Unani System of Medicine, there is a unique concept of Food Medicine (*Dawā' Ghidhā'ī*) and Medicinal Food (*Ghidhā' Dawā'ī*). Substances used primarily for their medicinal properties but also having nutritional value are called Food Medicine (*Dawā' Ghidhā'ī*), e.g. Almond, Fig etc. Therefore, they not only treat a disease but also nourish the patient. The substances which are used primarily as food but also have some medicinal properties are known as Medicinal Food (*Ghidhā' Dawā'ī*) e.g. Egg, Bengal gram etc. They have the advantage of being very safe.



Drug Source

In the Unani System of Medicine only natural substances are used as drugs. Although, the system made great advancements in the chemical processing of drugs i.e. distillation, sublimation, etc., it did not disturb the basic natural character of drugs, which is one of the fundamental reasons for the safety of Unani drugs.

Based on their origin, Unani drugs are classified into three categories:

Drugs of plant origin (*Adwiya Nabātiyya*): Roots, stems, bark, leaves, flower, seed, fruit, gum, resin, extract, etc.

Drugs of mineral origin (*Adwiya Ma'daniyya*): Different metals; metal ores and nonmetals in the natural form.

Drugs of animal origin (*Adwiya Haywāniyya*): Animal glands, tissues and certain animal poisons.

5.1 PRINCIPLES OF DRUG ACTION

Unani drugs act either by their Temperament (*Mizāj*) or by their Essence (*Sūrat Naw'iyya*). The Temperament of a drug can be determined by its basic qualities viz. hot, cold, dry or wet, which indicate certain pharmacological actions that need to be confirmed by clinical testing.

5.1.1 Temperament of Drugs

Like all entities of the Universe, drugs are also constituted by the mixing of Elements. Therefore, their basic character is indicated by the resulting qualitative Temperament, e.g. Hot drugs (*Adwiya Ḥārra*), Cold drugs (*Adwiya Bārida*) etc. When it is said that a drug is hot or cold, it does not mean that it is intrinsically very hot or cold, or that it is hotter or colder than the human body. Rather, it indicates that such a drug produces a greater degree of heat or cold in the body than what was originally present. Further, the same drug may be less hot for one person than for the other. This is one of the reasons why different drugs are prescribed for the same disease in different persons.

5.1.2 Categories of Drugs

Pharmacological actions arise from the Qualities of the drug indicated by its Temperament. Therefore, potency of a drug is described by grading the Temperament into four degrees:

First degree drugs: First degree drugs do produce pharmacological effects but their effects, in terms of Qualities i.e. hot or cold, are not perceptible.



Second degree drugs: The effect of these drugs, in terms of qualities, are perceptible, but not to the extent of altering the normal functioning of the body.

Third degree drugs: The effects of these drugs, in terms of qualities, are strong and alter normal functioning of body significantly, but not to the extent of causing harm.

Fourth degree drugs: The effects of these drugs are excessively strong and toxic to the extent of being fatal. However, these drugs can be used safely after undergoing specific process (*Tadbīr*).

5.2 PHARMACEUTICS

The Unani System of Medicine prescribes elaborate formulation or pharmaceutical processing of drugs for achieving stability, palatability, absorption and assimilability, and for enhancing efficacy and safety. These objectives are obtained not only by developing various dosage forms on rational and experimental bases but also by devising many processing techniques (*Tadābīr*). This pharmaceutical processing is applied to both single (single ingredient) preparations and compound (multiple ingredient) Preparations, majority being of the later type. It also has a unique speciality of adding Corrective Drugs (*Muṣliḥ Adwiya*) to counter the toxicity of the main drug.

The Unani drugs are being manufactured mostly in the classical form. Modern instruments are used in preparation of drugs. Sometimes, minor alterations are made in the dosage forms and due care is taken not to depart from the essence. The Unani drug industry is preparing and marketing two types of drugs: (i) Classical Unani formulations (ii) Patent and Proprietary products. Good Manufacturing Practices are followed in order to ensure quality control of the drugs.

Dosage Forms

The dosage forms have been developed to achieve all the basic objectives of pharmaceutical processing i.e. palatability, assimilability, stability and enhancement of safety and efficacy. In Unani System of Medicine, drugs are used mainly in four forms viz. solid, semi-solid, liquid and vapours. Solid dosage forms are pill (*Habb*), tablet (*Qurş*), powder (*Safūf*) etc., Semi-solid dosage forms are of various types e.g. *Jawārish*, *Ma'jūn*, *Khamīra*, *La'ūq*, *Itrīsal* etc. Liquid dosage forms are decoction (*Joshānda*), infusion (*Khīsānda*), distillate (*'Arq*), syrup (*Sharbat*), drops (*Qatūr*) etc. Vapour dosage forms are fumigation (*Bakhūr*), steam inhalation (*Inkibāb*), perfumes, *Lakhlakha* etc. In addition to the oral drugs, Unani physicians also administer drugs through enema (*Huqna*), Sitz bath (*Ābzān*), pessary (*Firzaja*), suppository (*Shiyāf*), liniment (*Tilā'*) etc.

Besides, *Kushta* is used for various ailments. *Kushta* is fine powdered form of medicinal preparations obtained by the calcination of metal, mineral and animal origin drugs along with potentiating and corrective herbs which convert them into organic forms



that become biologically assimilable. The word *Kushta* is derived from *Kushtan* - a Persian word meaning “to kill” that denotes all the above changes. It should be noted that the inclusion of herbs prescribed by Unani System of Medicine produces additional qualities.

5.3 SPECIFIC PROCESSING OF DRUGS

Unani scholars were aware that the drugs of the fourth degree - drawn from plants, minerals (metals) and animals are toxic and harmful to the body. However, if properly processed they become safe enough for therapeutic use. Many techniques are used for the processing of drugs. Comparative pharmacological studies of the natural and processed forms of toxic drugs like Arsenic (*Samm al-Fār*), *Strychnos nux-vomica* (*Adhārāqī*), *Aconitum napellus* (*Bīsh*) etc. have revealed that the processed forms practically lose their toxicity when compared with the unprocessed, natural form.

The objectives of processing in Unani System of Medicine are not limited to detoxification but also include efficacy enhancement and pharmacokinetic optimization i.e. achievement of desirable rate of absorption, delivery to target tissue etc. A very large number of innovative processing techniques have been developed in Unani System of Medicine. Some of the important techniques are as follows:

Burning (*Ihrāq*)

This process is undertaken to evaporate the moisture content and to make the drug completely dry as indicated in respective formula. Drugs are burnt to the charring stage but not reduced to ash. Drugs that undergo this process are suffixed with the term ‘*Muharraq*’ or ‘*Sokhta*’ e.g. *Saratān Muharraq*, *Busud Sokhta* etc.

Bathing (*Ghasl*)

In this process the drugs are ground to fine powder. Thereafter, sufficient quantity of water is added, stirred and allowed to settle down. The coarse particles settle down at the bottom. The finer particles of the stone still suspended in the water come out when decanted. The decanted water is left undisturbed so that the finest particles are settled down at the bottom, water is removed and the particles when dried are finely powdered. The drugs so processed are called “*Maghsūl*” viz. *Shādinaj ‘Adasī Maghsūl*, *Sang Surmā Maghsūl*, *Lājward Maghsūl* etc.

Roasting (*Tahmīṣ*)

In this process the drugs are roasted to evaporate the moisture for their easy powdering, and to enhance their absorption, e.g. *Foeniculum vulgare* (*Bādiyān*), *Aegle marmelos* (*Belgirī*) etc. are subjected to this process.



Frying (*Taqliya*)

In this process the drugs are fried in a suitable oil to purify them and reduce the toxicity. *Halaylajāt* are fried in *Roghan Zard* before mixing in a compound formulation.

Tashwiya

In this process the drugs are wrapped into mud or wheat dough, kept in hot ash for a specified period, removed, unwrapped and squeezed to collect their juices for medicinal use, e.g. *Āb-i Seb Mushawwā*.

Purification (*Tasfiya*)

In this process solution of drug is slowly passed through a filtering medium. Some of the plant-, animal- and mineral origin drugs are naturally toxic in their properties and actions. Therefore, these drugs are detoxified or purified before adding in the formulation, in order to reduce their toxicity and enhance therapeutic action. The process of detoxification or purification of the drugs is called *Tadbīr-i Adwiya*, and the drugs which undergo this process are suffixed with the term '*Muṣaffā*'. Different processes of detoxification and purification are employed for different drugs.

Kushta

For preparation of *Kushta*, the drugs are ground and converted into tablet, put into earthen pot, and sealed by layers of cloth and clay. These are subjected to calcination by placing them in a pit between layers of cow dung cakes. The latter are then ignited. The intensity of heat is adjusted by specified number of cow dung cakes and dimensions of the pit. After calcination, the pit is allowed to cool completely. The earthen plates are taken out and the contents collected. Unani scholars prepared *Kushta* for deep penetration, rapid action, long shelf life and better efficacy of the drug. Some of the therapeutic uses and pharmacological actions of *Kushta* are as follows:

Kushta-i Jast possesses hepatoprotective activity.

Kushta-i Shibb has protective action against myocardial infarction.

Kushta-i Ḥaṛṭāl is effective in diabetes.

Kushta-i Nuqra has analgesic activity against chemical, thermal and electrical noxious stimuli.

Kushta-i Tilā' Kalān (Unani gold preparation) enhances cell mediated and humoral immunity.



Corrective Drugs (*Muṣliḥ Adwiya*)

The scholars of the Unani System of Medicine were aware of various possible adverse effects of some of the drugs. Therefore, while describing the characteristics of drugs they mentioned their possible adverse effects, along with their Corrective Drugs (*Muṣliḥ Adwiya*), e.g. *Ipomea turpethum* (*Turbud*) and *Citrullus colocynthis* (*Şahm-i Hanzal*), generally used as laxatives, cause tenesmus, which is corrected by adding *Zingiber officinalis* (*Zanjabil*). Likewise, *Aloe barbadensis* (*Şibr*), used as an anti-ageing agent, causes intestinal abrasions and tenesmus, which are corrected by *Sterculia urens* (*Katīrā*).

5.4 STANDARDIZATION AND QUALITY CONTROL

The Government of India has taken several steps to monitor quality standards of Unani drugs and introduced Good Manufacturing Practices (GMP) under Schedule 'T' of the Drugs and Cosmetics Act, 1940. Besides, the Act regulates manufacturing and marketing of Unani drugs. It also ensures that the raw materials used in the manufacture of drugs are authentic as per prescribed standards. In 2009, the Department of AYUSH in collaboration with Quality Council of India (QCI) developed a scheme for certification of quality assurance in AYUSH products. National Accreditation Board for Hospitals & Healthcare Providers (NABH) is a constituent board of Quality Council of India set up to establish and operate accreditation programme for healthcare organizations. Similarly, National Accreditation Board for Testing and Calibration Laboratories (NABL) has been established by Department of Science & Technology, Government of India. These laboratories have been approved for quality testing of Unani drugs.



Figure 22: A view of a drug standardization laboratory



Figure 23: Dr. Najma Heptulla, Hon'ble Union Minister of Minority Affairs; Prof. Talat Ahmad, Vice-Chancellor, Jamia Millia Islamia; Dr. G.N. Qazi, Vice-Chancellor, Jamia Hamdard; Prof. Rais-ur-Rahman, Director General, CCRUM; Dr. Khalid M. Siddiqui, Deputy Director General, CCRUM; Prof. Altaf Ahmad Azmi; Shri Aminuddin, Research Officer (Botany), CCRUM; and Dr. Mohammad Fazil, Research Officer Incharge, Hakim Ajmal Khan Institute for Literary and Historical Research in Unani Medicine releasing a publication on medicinal plants and folklore claim during the inaugural ceremony of two-day 'National Seminar on Hakim Ajmal Khan's Multidimensional Personality and Enduring Contributions' on 12 February 2016 at New Delhi.

Pharmacopoeia Commission for Indian Medicine

Pharmacopoeia Commission for Indian Medicine (PCIM) was established by the Government in 2010 to develop pharmacopoeial standards for Unani, Ayurveda and Siddha drugs and to publish Unani, Ayurvedic and Siddha Pharmacopoeia of India for the promotion of quality and safety of these drugs. Since its establishment, the PCIM constitutes Unani Pharmacopoeia Committee with the mandate to develop pharmacopoeial standards of Unani drugs.

Unani Pharmacopoeia Committee

The pharmacopoeial standards in respect of single and compound Unani drugs are developed by the Unani Pharmacopoeia Committee (UPC). The UPC consists of experts of Unani System of Medicine, chemistry, botany and pharmacology. The CCRUM has been designated as Secretariat for the UPC. The functions of the UPC are:

- To prepare Unani Pharmacopoeia of India (UPI) of single drugs and compound formulations
- To prescribe working standards for raw materials as well as compound formulations including test for identity, purity, strength and quality so as to ensure uniformity of the finished products



- To develop and standardize methods of preparation, dosage forms, toxicity profile etc. of the formulations
- To provide all other information on Unani formulations regarding their distinguished characteristics, methods of preparation, dosage, method of administration with various types of vehicle, binding agents and their toxicity
- To develop quality standards, safety, efficacy profile of different parts of plant; and to include new plants as Unani drugs
- Any other matter relating to quality standards, shelf life, identification, new formulations etc.

Following are details of National Formulary of Unani Medicine and Unani Pharmacopoeia of India already published:

	Volume	No. of Formulations	Year of Publication
National Formulary of Unani Medicine	I	391	August 1981
	II	202	1999, Reprinted in August 2007
	III	103	December 1999
	IV	166	September 2003
	V	178	July 2008
	VI	139	April 2011
Total		1179	

	Volume	No. of Formulations	Year of Publication
Unani Pharmacopoeia of India Part-I (Single drugs)	I	45	February 2007
	II	50	February 2007
	III	53	February 2007
	IV	50	August 2007
	V	52	January 2008
	VI	48	June 2009
Total		298	

	Volume	No. of Monographs	Year of Publication
Unani Pharmacopoeia of India Part-II (Compound formulations)	I	50	September 2009
	II	50	May 2010
Total		100	



Though Unani System is practiced in many countries, India is global leader in the field of developing pharmacopoeial standards of Unani drugs.

Good Manufacturing Practices (GMP)

As per World Health Organization, Good Manufacturing Practices (GMP) are a part of quality assurance which ensure that products are consistently produced and controlled as per the quality standards appropriate to their intended use and as required by the marketing authorization. GMP is aimed primarily at diminishing the risks inherent in any pharmaceutical production, which may broadly be categorized in two groups: cross contamination/mix-ups and false labeling. Above all, manufacturers must not place patients at risk due to inadequate safety, quality or efficacy. For this reason, risk assessment has come to play an important role in WHO quality assurance guidelines.

5.5 DRUG REGULATION AND LICENSING

The manufacture of Unani drugs is regulated through Drugs and Cosmetics Act, 1940, as amended from time to time. India is one of the major worldwide exporters of raw medicinal and aromatic plants and processed plant-based drugs. Government of India has been taking various initiatives to improve the standard of herbal drugs, and promote the drug industry by implementing certain Acts and Rules in consonance with the global standards for natural products. There is a statutory requirement to seek consultative technical advice in the matters of regulation and quality control of Ayurveda, Siddha and Unani drugs. The Central Government, as per the provisions of Drugs & Cosmetics Act, 1940, has set up an advisory body of experts and representatives from different stakeholders' groups called 'Ayurveda Siddha Unani Drugs Technical Advisory Board (ASUDTAB)'. The Board consists of twenty expert members with Director General of Health Services as its chairman. It is mandatory to bring regulatory issues of ASU drugs before the Board for advice and recommendations based on broad consultation. Framing of new provisions as well as amendment of existing provisions for regulation of ASU drugs always requires advice of the ASUDTAB. There is significant representation of Unani System of Medicine in the Board with the nomination of four members, namely Chairman of Unani Pharmacopoeia Committee, a Professor of Ilmul Advia, a drug manufacturer and a practitioner of notable professional standing. Regulatory reforms for drugs of Indian Medicine including those of Unani System of Medicine is a continuing agenda for ASUDTAB, and on its advice Central Government has taken a number of steps for improving the quality control situation in the country. The major legislations are as follows:

- Indian Drugs & Cosmetics Act, 1940 with amendment in 1964 for manufacture, sale and quality control of Unani as well as Ayurveda and Siddha drugs



- Food Safety and Standards Act, 2006 to regulate safety and standards of food items etc.
- Drugs & Magic Remedies (Objectionable Advertisements) Act, 1954 to prevent misleading advertisements of certain cure claims on specific disease condition
- Biological Diversity Act, 2002 for conservation, sustainable utilization and equitable sharing of benefits
- Indian Forest Act, 1927 to conserve medicinal plant species used in medicine

There are 505 licensed pharmacies manufacturing Unani drugs in various parts of the country. Besides, Indian Medicines Pharmaceutical Corporation Limited (IMPCL), Mohan (Uttarakand) – a Government of India Enterprises – is one of the major manufacturing units of Unani drugs, which caters to the needs of the Government dispensaries and hospitals. Unani pharmacies run by the State Governments are also functioning in Uttar Pradesh, Madhya Pradesh, Andhra Pradesh, Karnataka and Tamil Nadu. For the Unani pharmacies, GMP Certificate is mandatory. Some renowned Unani pharmacies are as follows:

- Hamdard (Wakf) Laboratories, Delhi
- Dawakhana Tibbiya College, Aligarh
- Indian Medicines Pharmaceutical Corporation Limited (IMPCL), Mohan

Pharmacopoeial Laboratory

The Pharmacopoeial Laboratory for Indian Medicine (PLIM), Ghaziabad (Uttar Pradesh) (*Figure 24*) is a subordinate office of the Ministry of AYUSH, Government of India. The objectives of PLIM are as follows:

- To lay down standards of single drugs to be incorporated in Ayurvedic, Unani and Siddha Pharmacopoeia
- To lay down standards of compound formulations included in Ayurvedic, Unani and Siddha Formularies
- To analyse the survey, official samples and samples received from drug control authorities
- To collect genuine samples of crude drugs from different Agro-climatic zones of the country for pharmacopoeial standardization
- To maintain a Medicinal Plants Garden and find out indigenous substitutes for exotic plants
- To organize Orientation Lecture Programmes for Drug Inspectors/Drug Analysts
- To organize training programmes for scientists working in the pharmaceutical industry of ISM



- To preserve standard and authentic specimens in herbarium and museum
- To establish a Drug Depot of genuine crude drug samples
- To develop a Computerized Documentation Section having latest ISM information



Figure 24: A view of Pharmacopoeial Laboratory for Indian Medicine (PLIM), Ghaziabad (Uttar Pradesh)

5.6 ESSENTIAL DRUGS LIST (EDL)

In the endeavour of promoting health equity and facilitating smooth procurement of medicines by the Central and State health agencies, Essential Drugs List (EDL) including that of Unani System of Medicine was published by the Department of AYUSH in 2000, which was later updated and revised in 2013. The medicines for Unani EDL have been selected on the basis of their effectiveness in primary healthcare, safety, availability and cost-effectiveness. These medicines are expected to be available within the context of functioning health systems at all times, in adequate amounts, in appropriate dosage forms, with assured quality, and at affordable prices. Careful selection of essential medicines with a limited range has been done to provide a higher quality of patients' care, better management of medicines and cost-effective utilization of health resources. The Unani EDL contains 288 generic medicines including 213 multi-ingredient formulations and 75 single drugs taken from authoritative texts, national pharmacopoeia and formulary of Unani Medicine. Preparation of the list entailed broad consultation with experts and specific consideration in view of the multiple indications of medicines, dosage forms and diverse preferences of practitioners. The EDL is meant to guide need-based procurement and supply of medicines and enable state governments to organize stocking of medicines in the dispensaries, hospitals and other health facilities with optimal use of financial resources for health coverage. Reliance on EDL-based management of supplies of medicines is intended to increase public confidence in health services.



5.7 COMMONLY USED MEDICINAL PLANTS IN UNANI MEDICINE



Figure 25: *Aloe barbadensis* Mill. (Sibr)

Uses – Arthralgia, constipation



Figure 26: *Alpinia galanga* Willd. (Khulanjān)

Uses – Nervous disorders, cough, bronchial asthma



Figure 27: *Ammi majus* Linn. (Aṭrīlāl)

Uses – Vitiligo, skin disorders



Figure 28: *Artemisia absinthium* Linn. (Afsantīn)

Uses – Hepatitis, fevers



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Figure 29: *Asparagus racemosus* Willd. (Satavar)
Uses – Sexual debility, spermatorrhoea



Figure 30: *Borago officinalis* Linn. (Gā'o Zabān)
Uses – Palpitation, mania, melancholia



Figure 31: *Cichorium intybus* Linn. (Kāsnī)
Uses – Hepatitis, gastritis, jaundice



Figure 32: *Colchicum luteum* Baker. (Sūranjān)
Uses – Arthralgia, gout



Figure 33: *Crocus sativus* Linn. (Za'frān)
Uses – Rhinitis, catarrh, cardiac and liver disorders



Figure 34: *Cuscuta reflexa* Roxb. (Aftīmūn)
Uses – Mania, melancholia, epilepsy



Figure 35: *Cydonia oblonga* Mill. (Bihī)
Uses – Coryza, catarrh, cough, palpitation



Figure 36: *Cyperus rotundus* Linn. (Sa'd Kūfi)
Uses – Palpitation, paralysis, Bell's palsy



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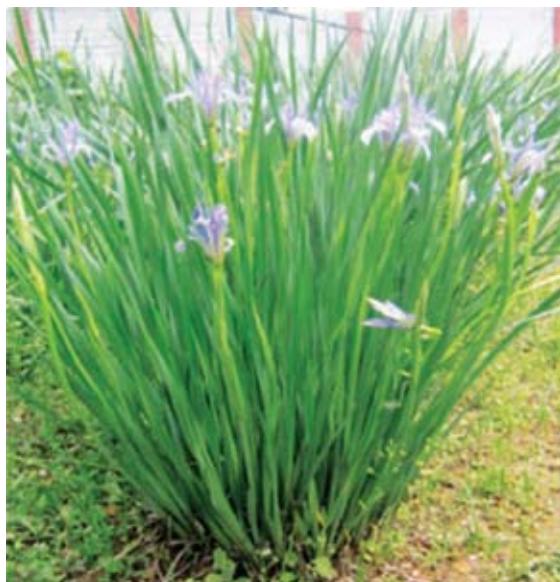


Figure 37: *Iris ensata* Thunb. (İrsā)
Uses – Cough, bronchial asthma, paralysis



Figure 38: *Lavandula stoechas* Linn. (Uştūkhūdūs)
Uses – Chronic catarrh, sinusitis, chronic headache



Figure 39: *Malva sylvestris* Linn. (Khubāzī)
Uses – Coryza, catarrh, cough, sore throat



Figure 40: *Matricaria chamomilla* Linn. (Bābūna)
Uses – Arthralgia, amenorrhoea



Figure 41: *Mucuna pruriens* Bak. (Konch)
Uses – Premature ejaculation, spermatorrhoea



Figure 42: *Nigella sativa* Linn. (Habb al-Sawdā')
Uses – Flatulence, dyspepsia, amenorrhoea



Figure 43: *Physalis alkekengi* Linn. (Kāknaj)
Uses – Burning micturition, renal calculi, jaundice



Figure 44: *Psoralea corylifolia*, Linn. (Bābchī)
Uses – Vitiligo, melasma, scabies, ringworm



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Figure 45: *Rauwolfia serpentina* Benth. (Asravl)
Uses – Hypertension, melancholia, mania



Figure 46: *Ricinus communis* Linn. (Bed Injir)
Uses – Arthralgia, constipation



Figure 47: *Ruta graveolens* Linn. (Sudab)
Uses - Flatulence, dyspepsia, amenorrhoea



Figure 48: *Sisymbrium irio* Linn. (Khaksī)
Uses – Fever, cough, measles, chicken pox



Figure 49: *Solanum nigrum* Linn.

(Inab al-Tha'lab)

Uses – Hepatitis, gastritis, ascites



Figure 50: *Strychnos nux-vomica* Linn. (Adhārāqī)

Uses – Paralysis, Bell's palsy



Figure 51: *Viola odorata* Linn. (Banafsha)

Uses – Coryza, catarrh, cough

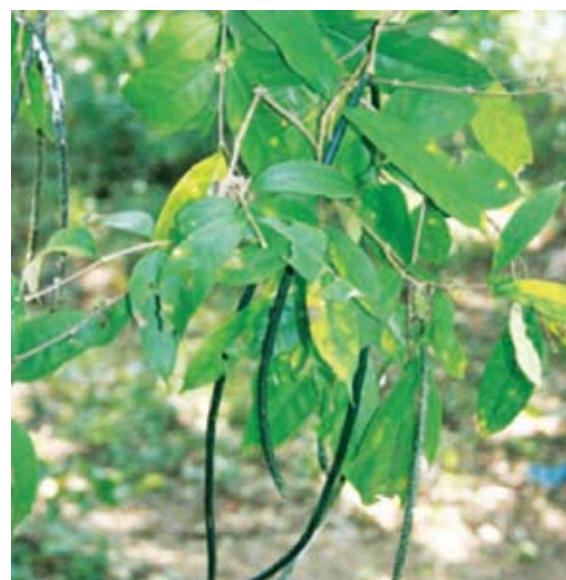


Figure 52: *Wrightia tinctoria* Br. (Lisān al-'Asāfir)

Uses – Spermatorrhoea, premature ejaculation



5.8 NATIONAL MEDICINAL PLANTS BOARD

The Government of India in November 2000 established the National Medicinal Plants Board (NMPB) under the then Department of AYUSH, Ministry of Health & Family Welfare with the objective to coordinate all matters relating to medicinal plants and development of medicinal plant sector in India. The NMPB is an apex national body, which acts as an advisory body to the concerned Ministries, Departments and Agencies in strategic planning of medicinal plants related initiatives; and to plan and support policies and programmes relating to conservation, cultivation and all round development of medicinal plants sector.

India has unique distinction of possessing medicinal plants ranging from Himalayan to Marine and Desert to Rain Forest eco-systems. It is one of the 17 mega bio-diversity rich countries and has seven percent of the world's bio-diversity. It has 15 Agro-Climatic zones and 16 Forest Types and medicinal plants are distributed across all bio-geographical regions, diverse habitats and landscapes. Further, India has traditional knowledge and culture for the use of these medicinal plants. In fact, it has one of the oldest, richest and most diverse cultural traditions associated with the use of medicinal plants. The role of NMPB is very critical not only in developing sources for good quality drug raw material but also to help conserve the biodiversity.

The NMPB has also supported research activities pertaining to the various aspects of medicinal plants and 240 R&D projects. Following are some of the important research outcomes supported by NMPB:

- Development of Agro-technique for 82 medicinal plants
- Production of quality planting material of rare endangered threatened (RET) medicinal plants through standardization of Tissue Culture Protocols of certain species
- Seed standardization of certain medicinal plants which will help in availability of quality planting seeds
- Preparation of the comprehensive database and monographs of high value medicinal plants
- Isolation of certain known marker compounds for identification of quality raw material
- Chemical and molecular profiling for elite germplasm and their conservation
- Identification of substitute medicinal plants/parts of RET medicinal plants
- Bioactivity guided fractionation studies for important medicinal plants.



5.9 QUALITY ASSESSMENT OF MEDICINAL PLANTS

The Central Council for Research in Unani Medicine prepares clinical trial batches of polyherbal formulations from medicinal plants after proper quality control as per GMP guidelines notified by the Ministry of AYUSH, Government of India. Single Unani drugs are procured either from local market or cultivation source after ensuring their quality standards. Efforts are also being made to procure medicinal plants along with cultivation data from IIIM, Jammu. Some of the medicinal plants, like *Ammi majus*, *Artemesia absinthium* and *Borago officinalis* are also being cultivated in the Council's institutes at Aligarh and Srinagar. The quality standards for *Glycyrrhiza glabra* Linn. (Figure 53 & 54) and *Piper longum* Linn. (Figure 55 & 56) are given below:

Glycyrrhiza glabra Linn. - T.S. Rhizome and TLC Profile

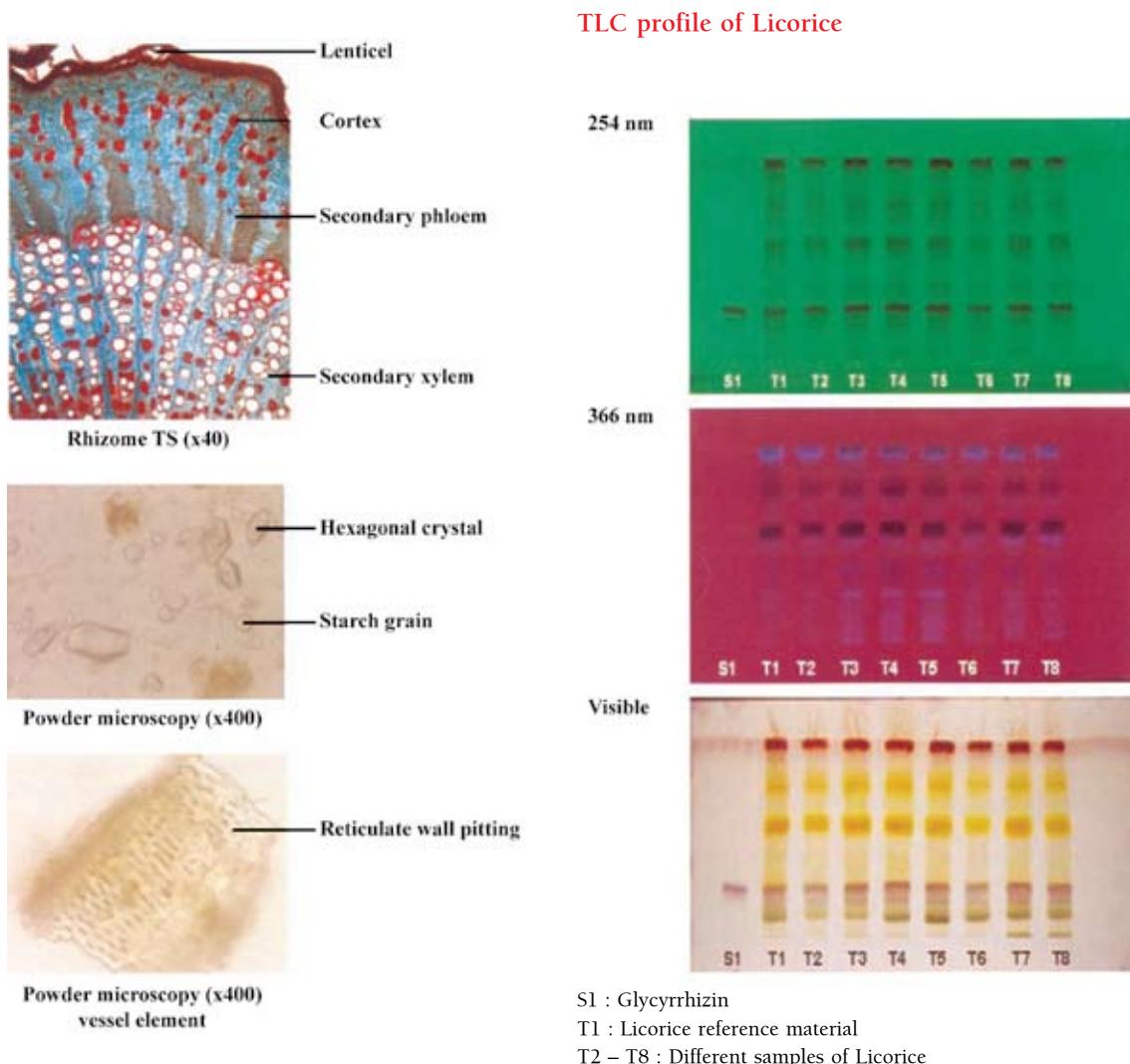


Figure 53: Pharmacognostical Standards of *Glycyrrhiza glabra*

(Source: Agarwal A. and Murali B., 2010)



HPTLC profile of Licorice

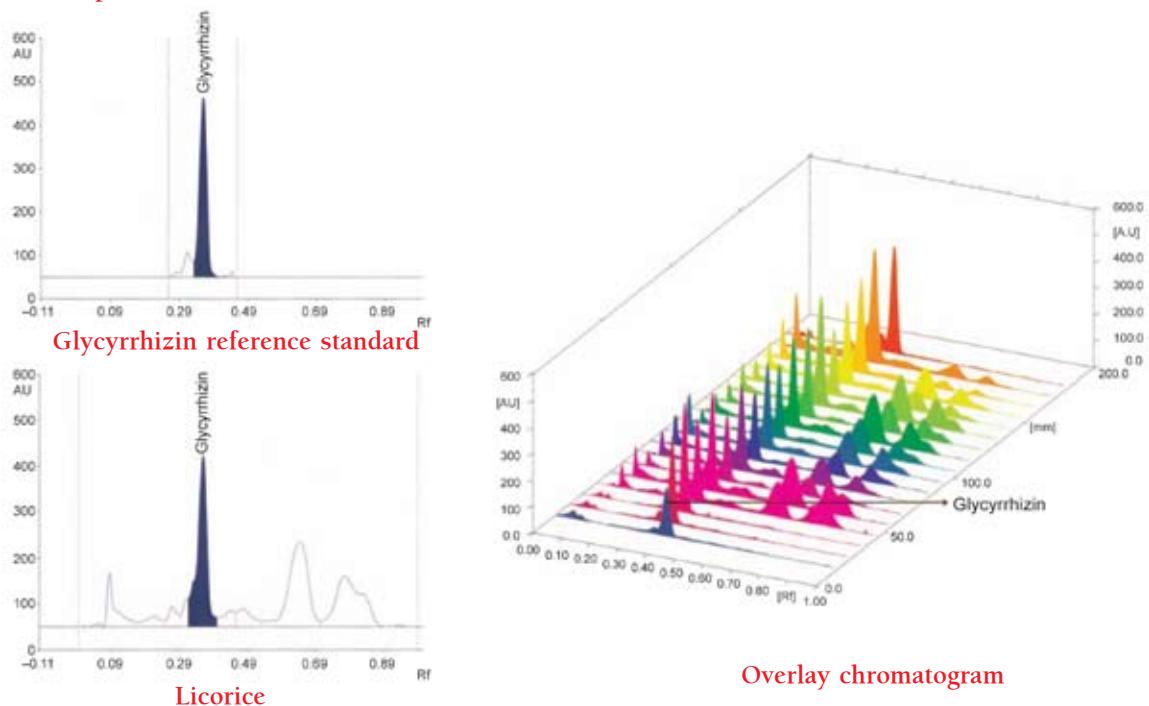
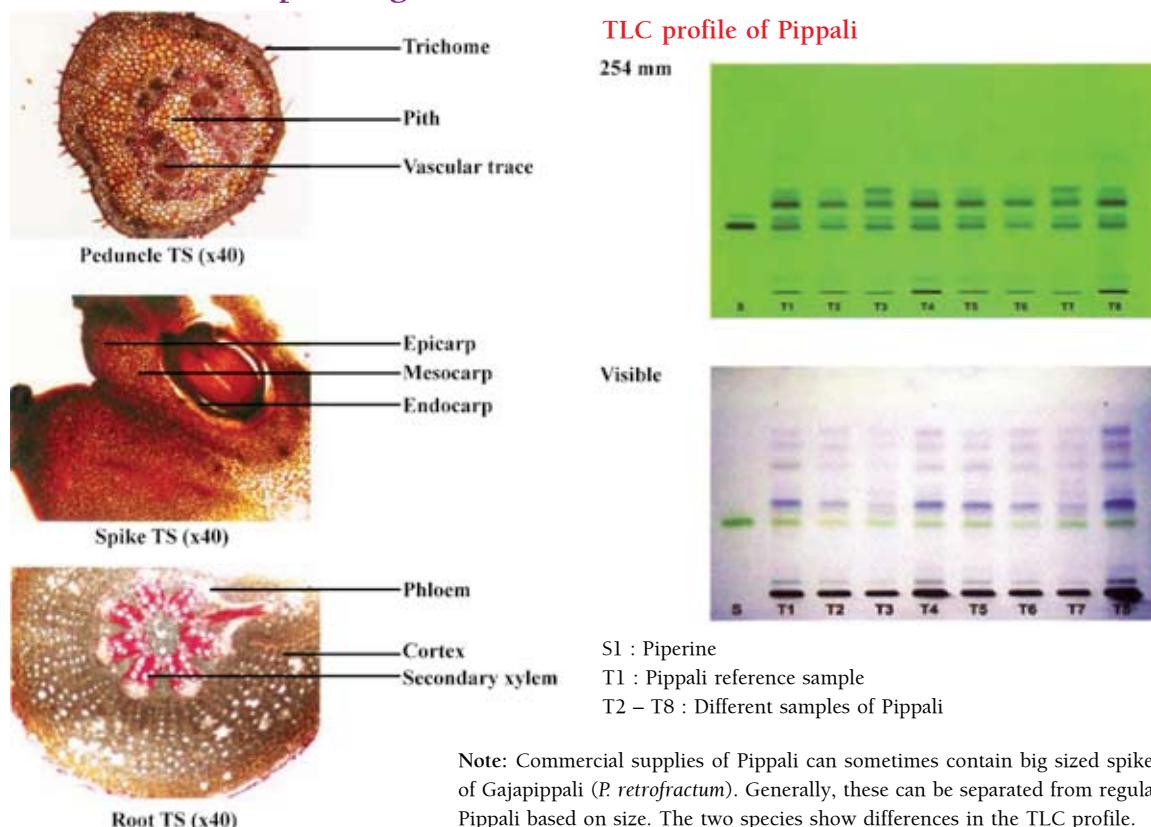


Figure 54: HPTLC Profile of *Glycyrrhiza glabra*

(Source: Agarwal A. and Murali B., 2010)

Piper longum Linn. - T.S. and TLC Profile



Note: Commercial supplies of Pippali can sometimes contain big sized spikes of Gajapippali (*P. retrofractum*). Generally, these can be separated from regular Pippali based on size. The two species show differences in the TLC profile.

Figure 55: Pharmacognostical Standards of *Piper longum*

(Source: Agarwal A. and Murali B., 2010)



HPTLC Profile of Pippali

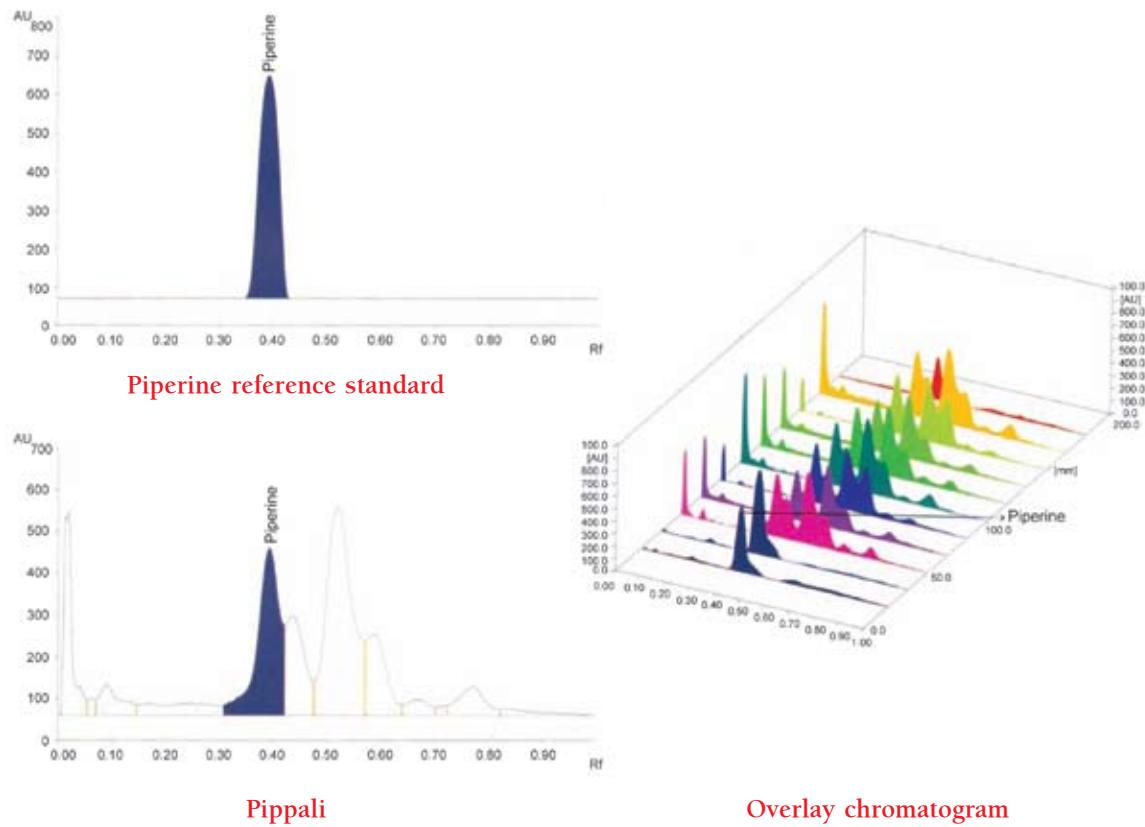


Figure 56: HPTLC Profile of *Piper longum*

(Source: Agarwal A. and Murali B., 2010)

5.10 PHARMACO-VIGILANCE

Pharmaco-vigilance of Ayurveda, Siddha and Unani drugs is the emerging concept that has been taken up for systematic implementation with the support from Central Government. The objective of the scheme is to support building up a system for safety monitoring of traditional medicine drugs and for dissemination of drugs-related information. It is envisaged to involve ASU institutions and professionals to develop the culture of reporting adverse drug reactions of ASU drugs and compile data for taking remedial actions against such drugs, as are found to be potentially hazardous to human health. The scheme is intended to involve a specific funding pattern for setting up Pharmaco-vigilance system, training & capacity building programmes and documentation and information dissemination about the safety of ASU drugs.

The pharmaco-vigilance initiative for ASU drugs was initially conceptualized in the year 2008 under the WHO-Government of India collaborative biennium programme for traditional medicine. Since then the Institute of Postgraduate Teaching & Research in Ayurveda, Jamnagar (Gujarat) has been declared as National Pharmaco-vigilance



Resource Centre to coordinate the initiative by organizing training & capacity building programmes and developing the protocol and ADR reporting format. A dedicated website www.ayushsuraksha.com has been launched for e-reporting of ADRs. More than 2000 ASU practitioners have been given orientation training on pharmaco-vigilance and related modules included in the syllabi of undergraduate, diploma and postgraduate courses prescribed by the Central Council of Indian Medicine (CCIM). Regional and peripheral centres included in the pharmaco-vigilance framework cover institutions, practitioners and drugs of Unani System of Medicine.



Chapter 6

RESEARCH AND DEVELOPMENT

The movement of research in Unani System of Medicine dates back to the times of its origin when Greek physician-philosopher Hippocrates freed Medicine from superstitions and presented it in the initial scientific form. Thereafter, the Roman scholar Galen stabilized the foundations of Hippocratic medical thoughts on which the Arab and Iranian physicians like al-Rāzī and Ibn Sīnā built an edifice and developed the system to great heights. Ibn Sīnā laid down guidelines for clinical testing of drugs as early as in 11th Century.

The scientific research in Unani System of Medicine was given a boost in India by a versatile genius, Masīḥ al-Mulk Ḥakīm Ajmal Khān, in the 1920s. He spotted Dr. Salīm al-Zamān Ṣiddīqī, a chemist, for undertaking chemical studies on some important medicinal plants used in Unani System of Medicine. In 1931, Dr. Ṣiddīqī discovered the medicinal properties of the plant commonly known as *Asravl* (*Rauwolfia serpentina* Linn.), and successfully isolated from this plant an anti-arrhythmic agent, which he named as *Ajmaline* after his mentor Ḥakīm Ajmal Khān. Later, he also extracted from the same plant some other alkaloids that included *Ajmalinine*, *Ajmalicine*, *Isoajmaline* and *Neoajmaline* for the treatment of mental and cardiovascular ailments. This paved way to sustained research in the system. A number of committees appointed by the Government of India recommended detailed outline for the development of Indian Systems of Medicine including Unani System of Medicine. Systematic scientific research in these systems thereafter started with the establishment of a Central Council for Research in Indian Medicine and Homoeopathy (CCRIMH) in 1969. Research in Unani System of Medicine continued under the CCRIMH for about a decade. In March 1978, the Central Council for Research in Unani Medicine (CCRUM) was set up, which started functioning from 10 January 1979 to build up research base for the system with focused objectives and plans. Over the years, the CCRUM has emerged as the leading government organization of scientific research in Unani System of Medicine.

Research in Unani System of Medicine is being developed in the country with a multidisciplinary approach. The areas of research include fundamental research, preclinical and clinical research, drug standardization, survey and cultivation of medicinal plants, and literary research. Scientific studies in these areas have also been conducted by some other institutions e.g. National Institute of Unani Medicine, Bengaluru; Aligarh Muslim University, Aligarh; Jamia Hamdard, New Delhi; Government Nizamia Tibbi College, Hyderabad, and some other institutions. More than 1000 theses of postgraduate research in various disciplines of Unani Medicine have been produced from different academic institutions.



6.1 CENTRAL COUNCIL FOR RESEARCH IN UNANI MEDICINE (CCRUM)

The Central Council for Research in Unani Medicine (CCRUM) is an apex autonomous research organization functioning under the Ministry of AYUSH, Government of India for achieving the following key objectives:

- To undertake in-house research and collaborative research projects in Unani System of Medicine;
- To assist research and propagate scientific knowledge and experimental tools regarding the causation, mode of spread and prevention of diseases;
- To initiate, aid, develop and coordinate scientific research in fundamental and applied aspects of Unani System of Medicine and promote and assist research institutions for the study of diseases, their prevention, causation and treatment as per Unani Medicine approaches; and
- To exchange scientific information with other institutions, associations and societies interested in the objects similar to that of the CCRUM especially in observational studies on diseases.



Figure 57: A view of Central Council for Research in Unani Medicine (CCRUM) Headquarters, New Delhi

The policies, directions and overall guidance for the activities of the Council are regulated by the Governing Body. Hon'ble Minister, Ministry of AYUSH, Government of India is the President of the Governing Body and has general control on the affairs of the Council. The Scientific Advisory Committee (SAC) headed by a senior scientist of repute provides direction to the research activities. The SAC helps the Council in formulation, appraisal, implementation, monitoring and evaluation of the research



UNANI SYSTEM OF MEDICINE – The Science of Health and Healing

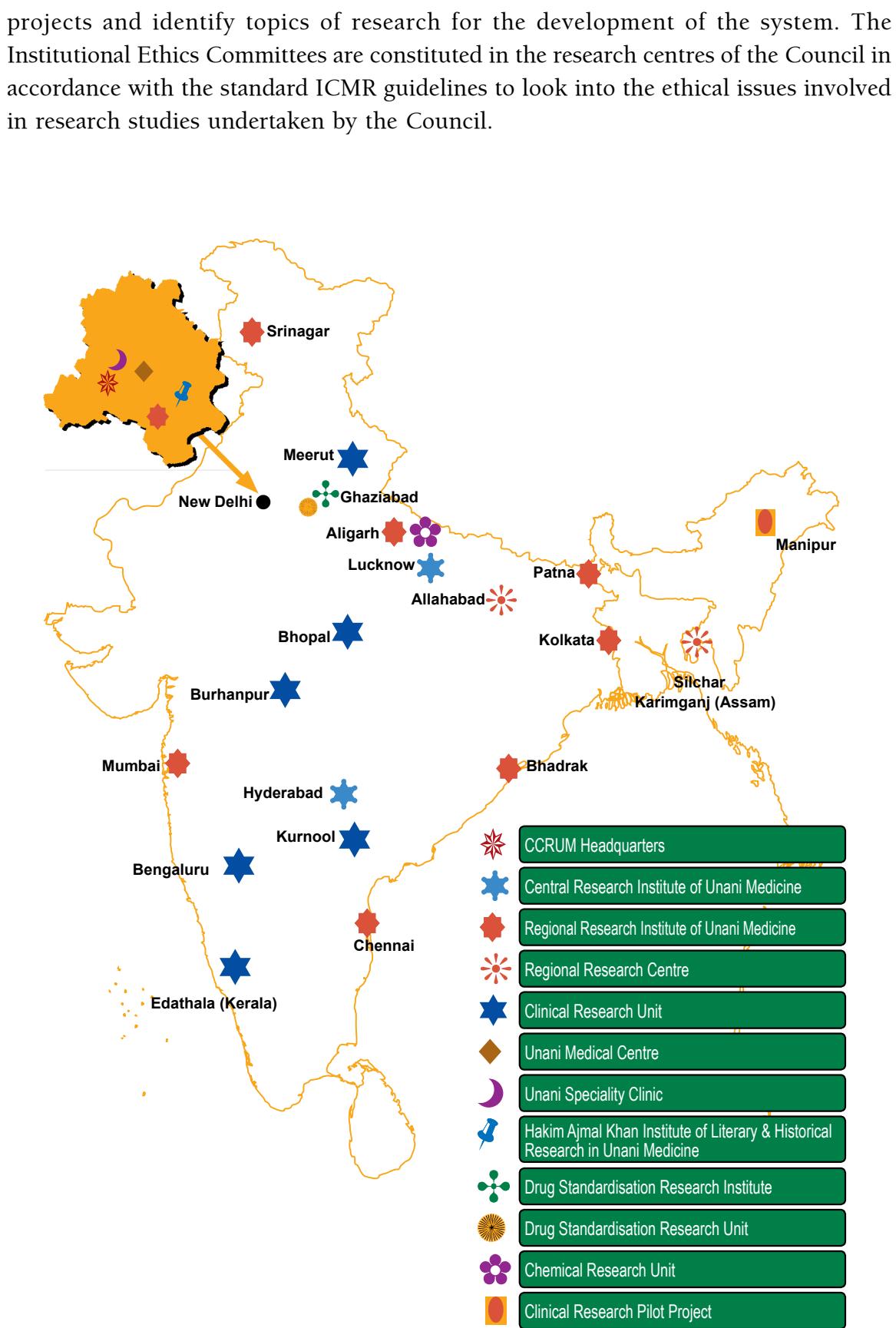


Figure 58: Institutional Network of CCRUM



Figure 59: A view of the meeting held on April 10, 2016 at CCRUM headquarters to welcome the non-official members of the Council's reconstituted Governing Body notified on 14 March 2016.

The Council has its headquarters at New Delhi with 23 centres functioning in different parts of the country. The institutional network of the Council includes two Central Research Institutes of Unani Medicine - one each at Hyderabad and Lucknow; eight Regional Research Institutes of Unani Medicine - one each at Chennai, Bhadrak, Patna, New Delhi, Mumbai, Kolkata, Aligarh and Srinagar; Hakim Ajmal Khan Institute of Literary & Historical Research in Unani Medicine at New Delhi; Drug Standardization Research Institute at Ghaziabad; two Regional Research Centres of Unani Medicine - one each at Allahabad and Silchar; six Clinical Research Units (Unani) - one each at Bhopal, Burhanpur, Meerut, Bengaluru, Kurnool and Edathala; one Drug Standardization Research Unit at Ghaziabad; one Chemical Research Unit (Grant-in-aid) at Aligarh; and one Clinical Research Pilot Project at Imphal, Manipur.

Besides, the Council has two co-location centres in allopathic hospitals in New Delhi for providing free Unani treatment under one roof. These include a Unani Medical Centre at Dr. Ram Manohar Lohia Hospital and a Unani Speciality Centre at Deen Dayal Upadhyay Hospital.

Further, the AYUSH Wellness Clinic (AWC), established at the President's Estate, New Delhi on 25th July, 2015, is jointly managed by the CCRUM. The AWC is a unique project where all the AYUSH systems have come under one roof to provide medical services to the residents of the President's Estate. All manpower needs and medical facilities related to Unani Medicine is catered by the CCRUM.



Figure 60: Shri Pranab Mukherjee, Hon'ble President of India inaugurating AYUSH Wellness Clinic at President's Estate, New Delhi on 25 July, 2015. On his left are Shri Najeeb Jung, Lieutenant Governor of Delhi and Shri Shripad Naik, Minister of State (I/C) for AYUSH, Government of India.



Figure 61: Shri Pranab Mukherjee, Hon'ble President of India being briefed by Dr. Khalid M. Siddiqui, Deputy Director General, CCRUM about the benefit of a Unani formulation at Unani wing of AYUSH Wellness Clinic at President's Estate, New Delhi on 25 July 2015.

In a move to strengthen its research infrastructure and institutional network, the Council has recently upgraded the laboratories at CRIUM, Hyderabad and RRIUMs, Chennai, Srinagar and Aligarh with state-of-the-art equipment, modern technology and fresh structure. It has also constructed buildings for its three institutes – Regional Research Institute of Unani Medicine (RRIUM), Patna and Bhadark, and Central Research Institute of Unani Medicine (CRIUM), Lucknow.

Hakim Ajmal Khan Institute for Literary & Historical Research in Unani Medicine (HAKILHRUM) has been reorganised and relocated to Jamia Millia Islamia, a reputed Central University and a great campus of teaching and research. Clinical facility has also



Figure 62: A view of Unani Medical Centre at Dr. Ram Manohar Lohia Hospital, New Delhi



established at the Institute. The Institute earlier named as Literary Research Institute of Unani Medicine was located in the campus of Jamia Hamdard, New Delhi.

6.1.1 Achievements of CCRUM

The research programme of the CCRUM mainly comprises clinical research including safety and efficacy studies of Unani drugs, validation of the fundamentals of Unani Medicine, drug standardization and quality control, survey and cultivation of medicinal plants, and literary research. Information, education and communication (IEC), and human resource development (HRD) are also part of the Council's activities in addition to extension of health services. Following are some of the achievements of the CCRUM in its research programmes.

Clinical Research

The clinical research programme of the Council mainly aims at validating the therapeutic efficacy of Unani medicines and therapies which have been in use for centuries. The Council in this regard conducts both disease- and drug-based trials. Under this activity, the Council has achieved some significant leads in the successful treatment of certain diseases, e.g. Vitiligo (*Baraş*), Eczema (*Nār Fārsī*), Psoriasis (*Dā' al-Şadaf*), Sinusitis (*Iltihāb-i Tajāwīf-i Anf*), Rheumatoid arthritis (*Waja' al-Mafāṣil*), Bronchial asthma (*Dīq al-Nafas*), and Hyperlipidaemia (*Kathrat-i Shahm al-Dam*). Apart from these areas, the Council has also undertaken clinical studies on other diseases, e.g. Malaria, Filariasis, Leishmaniasis, Amoebic and Bacillary dysentery, Helminthiasis, Infantile diarrhoea, Infective Hepatitis, Menorrhagia, Leucorrhoea, etc.

Validation of formulations from National Formulary of Unani Medicine (NFUM) is also undertaken for re-establishing their efficacy and safety on scientific parameters in different diseases for which these have been used for years together.

Under clinico-pharmacological activity, the CCRUM has conducted pharmacological action and safety evaluation of 130 single and compound drugs, and 120 formulations have been clinically evaluated for their efficacy and safety in 30 diseases. These diseases include Vitiligo, Sinusitis, Rheumatoid Arthritis, Diabetes mellitus, Chronic Stable Angina, Hyperlipidaemia, Obesity, Eczema and Psoriasis, Infective Hepatitis, etc. Significant results have been achieved in clinical studies on Vitiligo, Rheumatoid Arthritis, Bronchial Asthma, Eczema and Psoriasis, Infective Hepatitis and Sinusitis. Thirty-one formulations have been developed for the treatment of these diseases, and 12 monographs and a number of research papers have been published. Eight Unani formulations have been patented by the Council, and 43 applications for seeking patents are under consideration of the Indian Patent Office.

The Council has clinically validated 25 Unani pharmacopoeial drugs for their safety and efficacy in 15 diseases, such as Weakness of Urinary Bladder, Anaemia, Boils



Figure 63: Dr. Khalid M. Siddiqui addressing the orientation workshop on research methodology organized by the CCRUM at New Delhi during 8–9 June 2015. On the dais are (left to right) Prof. Rais-ur-Rahman, Prof. Y.K. Gupta, and Prof. K.M.Y. Amin.

and Pustules, Hyperacidity, Piles etc. Besides, efficacy of Unani drugs has also been validated in different epidemics of Jaundice, Gastroenteritis, Cholera, Viral fever, Dengue fever, Conjunctivitis, Dropsy and Chikungunya. Besides, efficacy of different forms of regimenal therapy have been validated in different diseases. Efficacy of Cupping (*Hijāmat*) has been validated in Osteoarthritis and that of Leeching (*Tālīq*) in hypertension and frostbite. Standard Operating Procedures (SOPs) for various forms of Regimenal Therapy are also being developed. Multicentric clinical trials have also been conducted for validation of 12 formulations in different cosmetic problems.

Disease-wise major achievements in clinical research are as follows:

Vitiligo (*Baraṣ*)

The Council has conducted extensive multi-centric clinical studies on various Unani formulations in 45,885 patients of various types of vitiligo mainly at CRIUM, Hyderabad and other centres including RRIUM, Srinagar; RRIUM, Kolkata; RRIUM, Mumbai; and RRIUM, Patna. The studies have revealed best clinical efficacy of two combinations of oral and topical Unani drugs with efficacy rate ranging from 62 to 88 percent depending upon the type of the patches, parts of the body involved, and chronicity of the disease (Figure 64). Besides publishing a number of research papers, the Council has organized two workshops and brought out two monographs on vitiligo:

- *Clinical Studies on Baraṣ (Vitiligo)*, (1986), Central Council for Research in Unani Medicine, New Delhi.



Chapter 6 – RESEARCH AND DEVELOPMENT

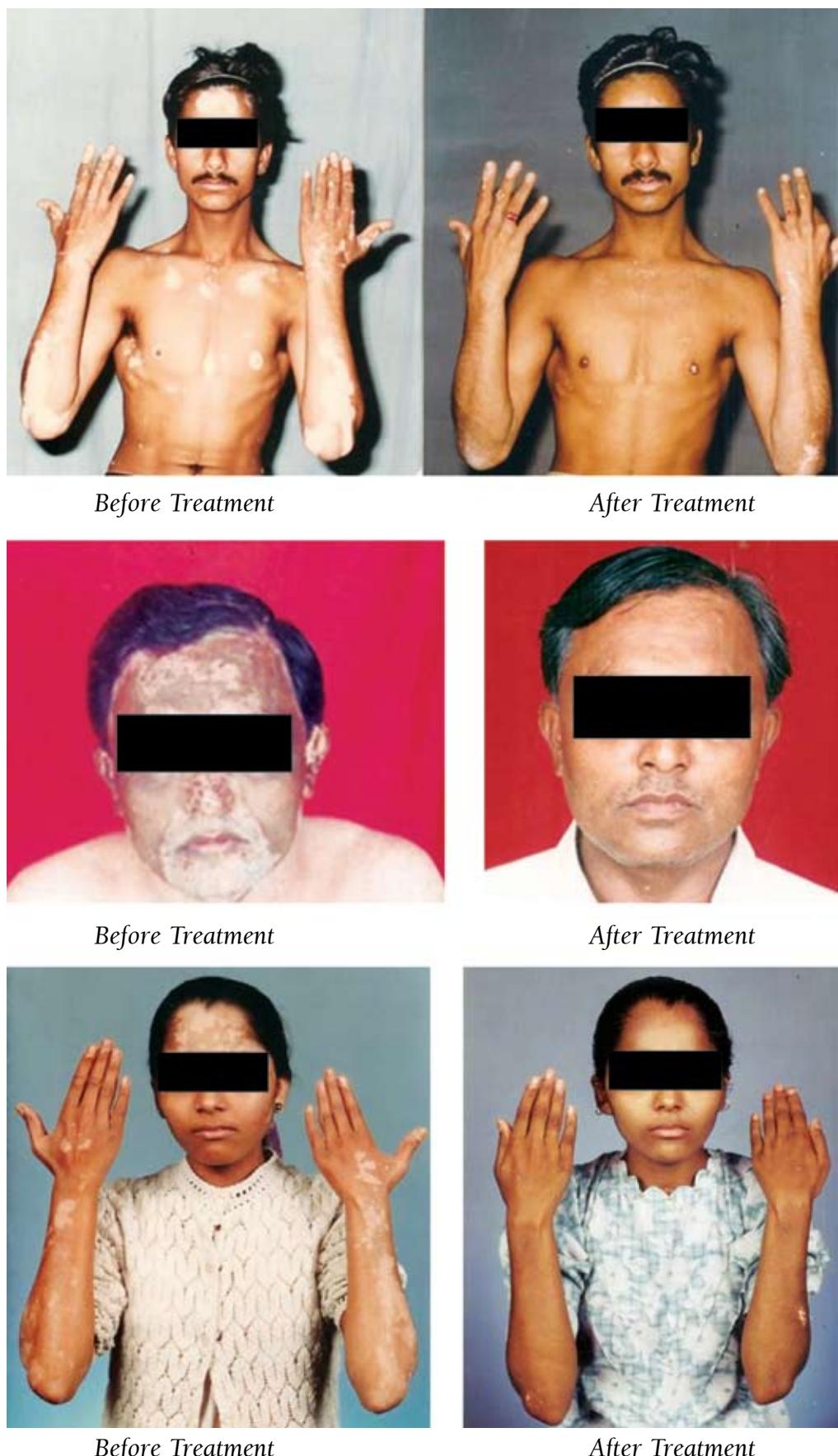


Figure 64: Efficacy of Unani Drugs in Vitiligo



- Monograph on Baraş (Vitiligo), (2006), Central Council for Research in Unani Medicine, New Delhi.

Eczema (*Nār Fārsī*) and Psoriasis (*Dā' al-Ṣadaq*)

In Unani Medicine, eczema (*Nār Fārsī*), a chronic skin disorder is attributed to impurities of blood. Different combinations of Unani formulations have been studied to evaluate their efficacy in 4,584 patients of eczema and in 971 patients of psoriasis in four clinical research units of the Council. Therapeutic efficacy of these drugs ranged from 53 to 60 percent in cases of eczema, and 68 to 73 percent in psoriasis. A publication entitled “Success Story on Eczema and Psoriasis” has been brought out by the Council.

Rheumatoid Arthritis (*Waja' al-Mafāṣil*)

Clinical and therapeutic studies were conducted at eight centres of the Council on a combination of two Unani drugs used orally and locally on 8000 patients of Rheumatoid arthritis. The formulations were found to have 39 to 42 percent efficacy in controlling clinical signs and symptoms of the disease. Application of Cupping (*Hijāmat*) along with these drugs enhanced the efficacy rate. The efficacy of the treatment further enhanced when concoctive (*Mundij*) and purgative (*Mushil*) drugs were used before treatment with the above regimens. The outcome of the study has been published by the Council in the form of a booklet entitled “Unani Treatment for Wajaul Mafasil (Rheumatoid arthritis) – A Success Story”.

Bronchial Asthma (*Dīq al-Nafas*)

Studies to evaluate the therapeutic effects of Unani formulations were conducted on 2700 patients of Bronchial asthma at two regional centres of the Council. The formulations showed significant effect ranging from 70 to 75 percent in subsiding the symptoms and signs of the disease. These drugs reduced the severity of asthmatic attack significantly and kept the patients away from frequent use of inhalers.

Sinusitis (*Iltihāb-i Tajāwīf-i Anf*)

Therapeutic efficacy of two Unani formulations was evaluated in 4974 patients of Sinusitis at Central Research Institute of Unani Medicine, Hyderabad. The drugs were given orally and by inhalation. The formulations showed 61 to 79 percent clinical efficacy including clearance of the sinuses in six to eight weeks of the treatment.

Diabetes mellitus (*Dhayābītūs Sukkārī*)

Clinical trials on a Unani formulation were conducted in 240 patients of type-II Diabetes mellitus at CRIUM, Lucknow; and RRIUM, New Delhi. The drug showed significant therapeutic effect in subsiding the clinical symptoms and reducing blood sugar levels in 70 percent cases within six months.



Hyperlipidaemia (*Kathrat-i Shahm al-Dam*)

A clinical study was conducted on a Unani drug in 98 cases of Hyperlipidaemia at CRIUM, Hyderabad. The formulation showed significant effect in decreasing the serum cholesterol, triglycerides, and LDL levels. However, the drug increased HDL level. The duration of treatment was six months.

Collaborative Projects

Besides its intramural research, the Council has also undertaken a number of research projects for pre-clinical and clinical studies in collaboration with leading scientific institutions in the country. Pharmacological and toxicity studies of Unani drugs have been undertaken at All India Institute of Medical Sciences (AIIMS), New Delhi; Vallabhbhai Patel Chest Institute (VPCI), Delhi; National Institute of Nutrition (NIN), Hyderabad; Jiwaji University, Gwalior; Jamia Millia Islamia, New Delhi; Chhatrapati Shahuji Maharaj Medical University, Lucknow; Jamia Hamdard, New Delhi; and Shobhaben Pratapbhai Patel School of Pharmacy & Technology Management (SPPSPTM), Mumbai. Clinical studies on psoriasis and vitiligo have been conducted in collaboration with Department of Dermatology and Venereology, AIIMS, New Delhi. Clinical studies on Bronchial Asthma, Infective Hepatitis, Obesity and Autism have been undertaken in collaboration with VPCI, Delhi; Lady Hardinge Medical College, New Delhi; Jawaharlal Nehru Medical College (JLNMC), Aligarh; and UDAAN, New Delhi respectively. Clinical studies on Duodenal Ulcer and Infective Hepatitis have been conducted in collaboration with Deccan College of Medical Sciences, Hyderabad.

Patenting of Drugs

Based on the outcome of research conducted at Council's institutes, eight patents have been granted from Indian Patent Office (IPO), one each for a drug for fever, coryza, haemorrhage, constipation, worm infestation and bronchial asthma; and two for rheumatoid arthritis. The Council has also filed more than 43 applications in IPO for grant of patents.

Patents granted to the CCRUM are as follows:

Sl.No.	Title of the Patent	Patent No. and Date	Drug
1	A herbal composition against bronchial asthma and process for preparation thereof	Pat. No: 244034 Dated : 19/11/2010	Z N – 5
2	A novel herbal composition and a process for preparation thereof effective against abdominal worm	Pat. No: 252163 Dated : 30/04/2012	D. A. 6



Sl.No.	Title of the Patent	Patent No. and Date	Drug
3	A herbal composition effective against nazfuddam and a process for the preparation thereof	Pat. No: 249180 Dated : 14/10/2011	Cap. Habis
4	A novel herbal composition effective as anti pyretic and to a process for the preparation thereof	Pat. No: 250021 Dated : 02/12/2011	Cap. Mubarak
5	A novel herbal composition effective against coryza and a process for preparing thereof	Pat. No: 249186 Dated : 14/10/2011	Cap. Nazla
6	A novel herbal composition (sugar coated) effective against rheumatoid arthritis	Pat. No: 250196 Dated : 23/12/2011	Qurs-e- Mafasil
7	A herbal composition effective against arthritis and to process for the preparation thereof	Pat. No: 250700 Dated : 27/01/2012	Cap. Hudar
8	A novel herbal composition and a process for preparation thereof effective against constipation	Pat. No: 251453 Dated : 23/03/2012	Qurs-e- Mulaiyin

Fundamental Research

Under the Council's programme of fundamental research at CRIUM, Hyderabad, 452 healthy individuals have been analyzed for their bio-chemical, haematological and hormonal values and correlated with their temperaments – sanguine, phlegmatic, biliary and melancholic (*Damawī*, *Balghamī*, *Safrāwī* and *Sawdāwī*). In the first phase of the study an attempt was made to establish scientific relevance and rationale of the theory and philosophy of Unani System of Medicine. In the second phase, susceptibility to and prevalence of disease was studied in individuals of different temperaments. Six other projects correlating the concept of humour and temperament with genomics are continued.

Safety Evaluation of Unani Drugs

Utmost importance has been attached to the safety of the patients during the treatment. Preclinical studies including safety evaluation and reverse pharmacology of Unani drugs are undertaken before clinical trials. The Council has so far completed pharmacological studies on 150 single and compound Unani drugs. Pharmacological and toxicological work is mostly undertaken at Central Research Institute of Unani Medicine (CRIUM),



Hyderabad and Regional Research Institutes of Unani Medicine (RRIUM) at Srinagar and Aligarh. A number of pharmacological studies has also been carried out in collaboration with other premier scientific institutions including All India Institute of Medical Sciences (AIIMS), New Delhi; Vallabhbhai Patel Chest Institute, Delhi; Chhatrapati Shahaji Maharaj Medical University, Lucknow; Jamia Hamdard, New Delhi; and Aligarh Muslim University, Aligarh. The Council has brought out a document titled “*Pharmacological and Toxicological Studies on Unani Single and Compound Drugs*”.

Drug Standardization Research

The Council’s Drug Standardization Research programme is mainly concerned with evolving standards in order to ensure identity, quality and purity of single drugs and compound formulations. This activity is being carried out through Drug Standardization Research Units and laboratories at national level. These laboratories use internationally accepted parameters for standardization and quality control. Government of India has set up Unani Pharmacopoeia Committee (UPC) to prescribe standards for single drugs and compound formulations mentioned in *National Formulary of Unani Medicine* (NFUM) for the use of manufacturers. Pharmacopoeia Commission for Indian Medicine (PCIM) has been established by the Government of India in 2010 to develop and publish Pharmacopoeial standards for Unani, Ayurveda and Siddha drugs.

The Council is engaged in developing quality standards of Unani drugs under the technical guidance of Pharmacopoeia Commission and Unani Pharmacopoeia Committee. So far it has developed and published standards for 298 single and 100 compound drugs. As shown schematically in self explanatory figure 65, the standards of *Ma'jun Bhangra*, a compound Unani formulation. The Drug Standardization Research Laboratory at Regional Research Institute of Unani Medicine, Chennai has been recognized as State Drug Testing Laboratory (DTL) by the Government of Tamil Nadu. Re-designing of dosage forms of three Unani Pharmacopoeial Formulations has also been completed. The Council has published the following drug standards related documents:

- *Standardization of Single Drugs of Unani Medicine* (five volumes)
- *Physicochemical Standards of Unani Formulations* (four volumes)
- *Chemistry of Medicinal Plants Part-I* (52 plants)
- *Unani Pharmacopoeia of India Part-I* (six volumes containing 298 monographs of single drugs)
- *Unani Pharmacopoeia of India Part-II* (two volumes containing 100 monographs of compound drugs)
- *National Formulary of Unani Medicine* (six parts containing standards of 1179 formulations)
- *Chemical Investigations of Some Common Unani Medicinal Plants*

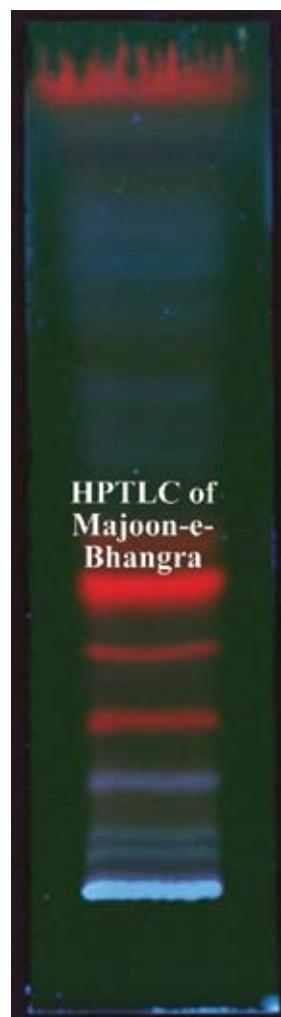


Figure 65(a)

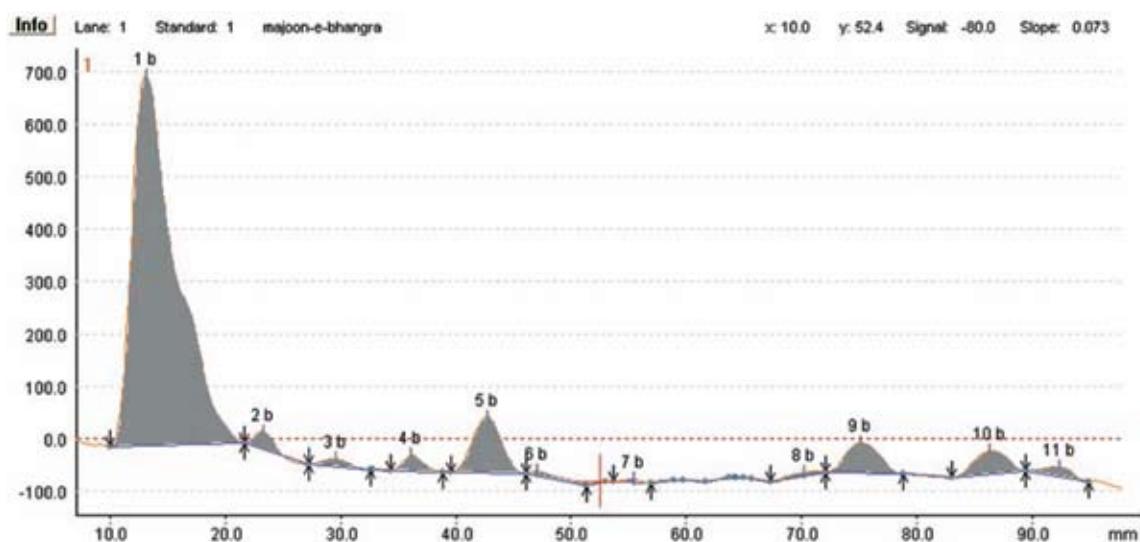


Figure 65(b)

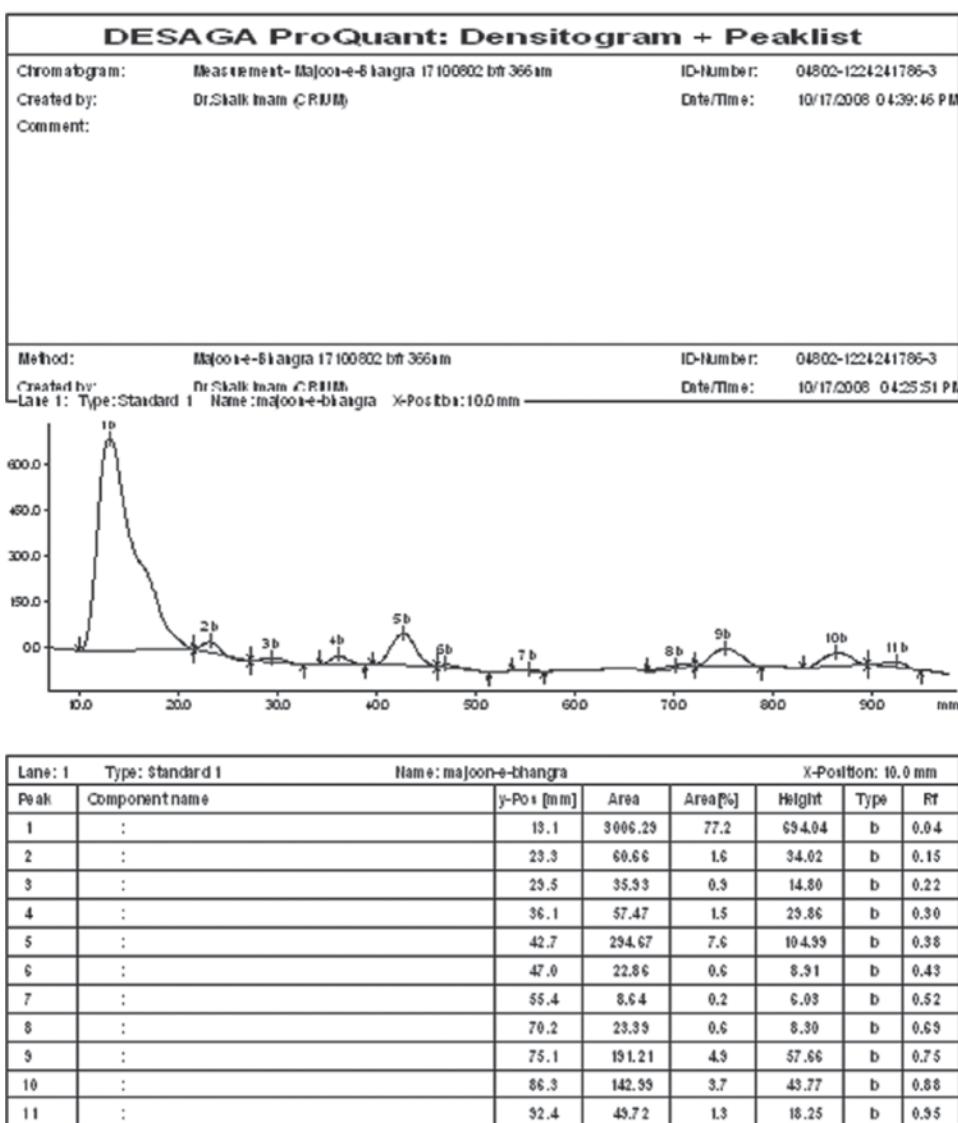


Figure 65(c)

Figure 65 (a), (b) and (c): HPTLC Finger Printing of Majūn Bhangra

Survey and Cultivation of Medicinal Plants

The Council has conducted ethno-pharmacological surveys in different remote forest zones of India, particularly tribal dominated areas, in the States of Andhra Pradesh, Tamil Nadu, Bihar, Jammu & Kashmir, Madhya Pradesh, Karnataka, Maharashtra, Orissa, Rajasthan, Uttarakhand and Uttar Pradesh. Over 1,02,897 specimens of medicinal plants have been collected in these surveys. The programme aims at achieving the following objectives:

- To study the distribution, availability and threats of extinction of medicinal plants species and suggest measures for their protection and conservation by setting up farms in different agro-climatic zones of the country;



- To maintain a herbarium and museum of medicinal plants and cataloguing information to develop a database;
- To develop herbal garden for cultivation of important and rare herbs and drugs.

Folk Claims

Collection work of ethno-pharmacological uses of plants from tribals and herbal practitioners is one of the activities of the Council undertaken during medicinal plants surveys in various parts of the country. As a result, the Council has gathered 12,888 folk claims of medicinal and other uses of locally available plants. Based on this information, the Council has published following books:

- (i) *Medicinal Plants of North Arcot District, Tamil Nadu*
- (ii) *Unani Medicinal Plants of Dindigul District, Tamil Nadu*



Figure 66: Shri Ajit M. Sharan, Secretary (AYUSH), Government of India planting medicinal plant at CRIUM, Hyderabad on 30 September 2015 in the presence of Shri Shripad Naik, Union Minister of State for AYUSH (I/C) and Shri Charlakola Laxma Reddy, Health and Medical Minister of Telangana.



Figure 67: A view of herb garden of CRIUM, Hyderabad



Figure 68: A view of the meeting held at CCRUM Headquarters on 4 May 2016 for appraisal of the activities & achievements and future planning of Survey and Cultivation of Medicinal Plants Programme

- (iii) Medicinal Plants in Folklores of Bihar & Orissa
- (iv) Medicinal Plants in Folklores of Orissa Part-II
- (v) Medicinal Plants in Folklores of Odisha Part-III
- (vi) Medicinal Plants in Folklores of Kashmir, Himalayas
- (vii) Medicinal Plants in Folklores of Northern India (Parts I & II)



Figure 69: CCRUM surveyors collecting folk claims from tribals in a forest



- (viii) *Medicinal Plants in Folklores of Southern India (Parts I & II)*
- (ix) *Medicinal Plants of Aligarh, Uttar Pradesh*
- (x) *Medicinal Plants of Andhra Pradesh (Parts I & II)*
- (xi) *Medicinal Plants of Gwalior Forest Division*
- (xii) *Unani Medicinal Plants of Siddhartha Nagar Forest Division, Uttar Pradesh*
- (xiii) *Unani Medicinal Plants of Tarai Forests in Kumaon Region of Uttarakhand*
- (xiv) *Potential Anti-Malarial Herbal Drugs from South-Eastern India (Bihar and Orissa States)*
- (xv) *Unani Medicinal Plants & their Folklore Claims from Chamarajanagar Wildlife Division of Karnataka*

Literary Research

The Literary Research Programme of the Council aims at editing, compilation and translation of manuscripts and rare books of Unani System of Medicine. Council's Hakim Ajmal Khan Institute of Literary & Historical Research in Unani Medicine has also collected rare Unani classical books and manuscripts from different libraries in India and abroad (Figure 70). Besides reprinting of 72 rare classical books, the Council

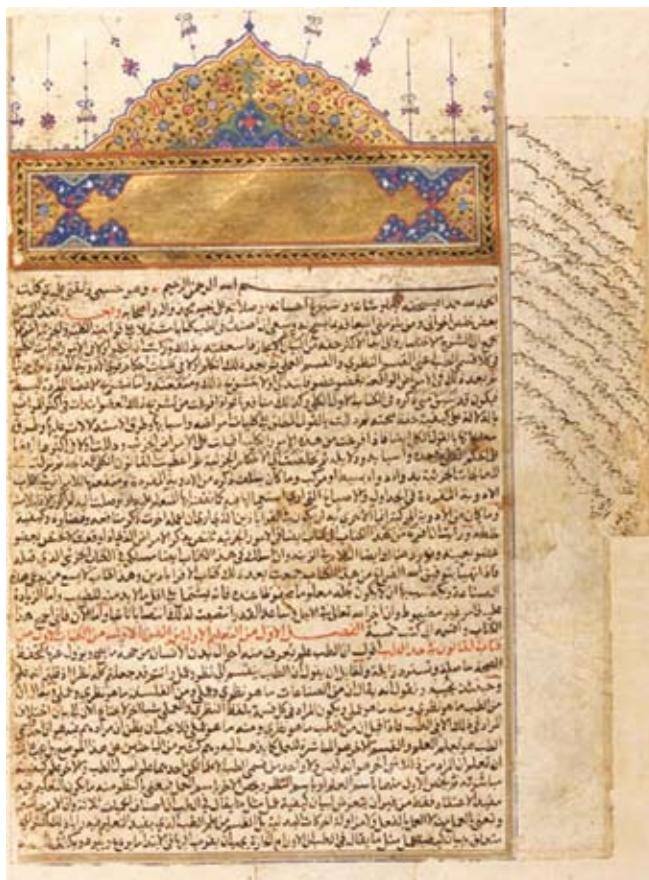


Figure 70: First page of a manuscript of al-Qānūn fī'l-Tibb by Ibn Sīnā



has translated and published 56 volumes of 20 classical books. Also, 40 important manuscripts have been digitized. A compendium of about 4,028 terms of Unani System of Medicine titled *Standard Unani Medical Terminology* has also been documented under the collaborative programme of Government of India and WHO for Traditional Medicine, and published by the Council. The Council also published first volume of *Standard Unani Treatment Guidelines for Common Diseases* comprising description of 70 diseases. The Council publishes a bi-monthly *CCRUM Newsletter*, two quarterly research journals - *Hippocratic Journal of Unani Medicine* and *Jahan-i Tibb* (Urdu) and extension material on success stories of Unani Medicine. Following important classical books have been translated into Urdu, and published by the Council:

- Ibn Rushd, *Kitāb al-Kulliyāt*
- Ibn Zuhr, *Kitāb al-Taysīr*
- Ibn Hubal, *Kitāb al-Mukhtārāt*
- Khān M.A., *Muḥīt-i Ażam*, Vol. I, II & III
- Ṭabarī, A. *Mu‘alajāt Buqrātiyya*, Vol. I, II & III
- Rāzī, M., *Kitāb al-Hāwī* (23 Volumes)
- Rāzī, M., *Kitāb al-Fākhīr*, Vol. I, (Part I & II)

Information, Education and Communication (IEC)

The Council has a reference library at its headquarters with a collection of about 17,000 books on Unani System of Medicine and allied sciences. The Council has also launched a website (<http://www.ccrum.net>) with its mission, vision, network, programmes, activities, outcomes etc. The research findings and scientific aspects of Unani Medicine are disseminated for awareness building of public and stakeholders through seminars, conferences, workshops etc. on Unani System of Medicine. The Council has successfully organized 30 scientific seminars, 32 workshops and two international events on Unani System of Medicine to deliberate technical and scientific issues. The Council's scientists have authored over 1,800 research papers and have presented them at various forums. Over 400 papers have been published in reputed scientific journals.

6.1.2 Ongoing Research Activities of CCRUM

Following are important ongoing research activities of CCRUM:

- Development of protocols based on WHO standards and GCP guidelines
- Multicentric clinical trials on four diseases Vitiligo, Diabetes mellitus, Hypertension and Infective Hepatitis
- Clinical validation of safety and efficacy of 39 formulations in 24 diseases
- Clinical studies for developing quick relief Unani drugs in five diseases
- Re-designing of seven pharmacopoeial formulations in their dosage forms



- Safety evaluation of Unani formulations
- Clinical studies of 38 formulations in Vitiligo, Sinusitis, Hyperlipidaemia, Hypertension, Chronic Stable Angina, Duodenal Ulcer, Rheumatoid Arthritis, Osteoarthritis, Osteoporosis, Infective Hepatitis, Diabetes mellitus, Psoriasis, Eczema, Malaria, Filariasis, Bronchitis, Kala Azar, Gingivitis, Tooth Hypersensitivity
- MoU with DST for strengthening of preclinical facility at RRIUM Srinagar and clinical facility at CRIUM Hyderabad
- MoU with ICMR for various collaborative research programmes
- MoU with IIIM, Jammu for various collaborative research programmes
- Collaborative preclinical studies for safety and efficacy of Unani formulations with established institutions like AIIMS, Jamia Millia Islamia, Jamia Hamdard, New Delhi; VPCI, Delhi; CSM, Lucknow; NIN, Hyderabad; SPPSPTM, Mumbai, etc.
- Collaborative clinical study on *Baras* (Vitiligo) with department of Dermatology, AIIMS, New Delhi
- Collaborative clinical studies on GERD, Infective Hepatitis and Duodenal Ulcer with Deccan College of Medical Sciences, Hyderabad
- Collaborative clinical study on Obesity with JLNMC, AMU, Aligarh
- Collaborative clinical study on Pulmonary Tuberculosis with NIRT, Chennai
- Collaborative clinical study on Autism with UDAAN, New Delhi
- Collaborative clinical study on Cervical Erosion with ICPO, Noida
- Investigation on Pharmacodynamic and Pharmacokinetic interaction of Unani Plants (anti-diabetic potential) with hypoglycemic drugs with Department of Pharmaceutical Analysis, SPPSPTM, Mumbai
- Collaborative study for redesigning of dosage form of Majoon Dabidul Ward and Majoon-e-Falasfa with Ajmal Khan Tibbiya College, AMU, Aligarh
- Collaborative studies for developing Nano Unani drug
- Collation, translation, editing and publication of rare books and manuscripts
- Development of Web Portal of Unani Medicine
- Development of Standard Treatment Guidelines
- Drug Standardization and SOPs of Unani Drugs
- Survey of various forest areas



- Experimental cultivation of Unani medicinal plants

6.1.3 Extension of Healthcare Services

In addition to its core business, the Council also extends healthcare services to the masses specially the deprived and underprivileged people through GOPDs, Mobile OPDs, Health Camps, School Health Programme, etc. Taking a further step for prevention in treatment of diseases, it has recently initiated to important programmes in selected areas – Integration of AYUSH with NPCDCS and Swasthya Rakshan Programme.

Integration of AYUSH with NPCDCS

Keeping in view the vital role of AYUSH systems of Medicine in prevention of Non-Communicable Diseases (NCDs), the Ministry of AYUSH in collaboration with Directorate General of Health Services has launched a programme to integrate AYUSH systems with National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) through its Research Councils. The major objectives of the programme are prevention and early diagnosis of these diseases; and to reduce complications and drug dependency through these systems. The CCRUM has initiated the integration of Unani Medicine in NPCDCS programme in Lakhimpur Kheri district of Uttar Pradesh through Central Research Institute of Unani Medicine (CRIUM), Lucknow. A 15-day training has been provided to the staff employed for this programme. Information, Education & Communication (IEC) materials for NPCDCS programme has also been published for distribution among the patients and their attendants/ wards attending Lifestyle/ Non-Communicable Disease (NCD) Unani clinics established at various levels, i.e., District Hospitals/ 17 Community Health Centers (CHCs)/ 54 Primary Health Centres (PHCs). The IEC materials are also distributed at community level by organizing awareness and screening camps.

Swasthya Rakshan Programme

The Government of India launched “Swachh Bharat Abhiyan” on 2nd October, 2014 to accomplish the vision of a ‘Clean India’. On the lines of Swachh Bharat Abhiyan (Clean India Mission), the Ministry of AYUSH has initiated Swasthya Rakshan Programme (SRP) through its national institutes and research councils to protect and promote health by adopting at least five villages for identifying, preventing and treating the diseases related to poor hygiene and sanitation. The main objectives of the programme are to initiate Swasthya Rakshan Mobile OPDs for providing AYUSH treatment and organizing camps for screening and early diagnosis of diseases in rural areas. This includes creating awareness through health education, developing and distributing IEC material in local languages for better outreach and compliance. The programme has been initiated by the CCRUM through its 12 institutes/ centres; Central Research Institutes of Unani Medicine (CRIUM), Hyderabad and Lucknow; Regional Research Institutes of Unani Medicine (RRIUM), Delhi, Mumbai, Kolkata, Chennai, Srinagar, Patna, Aligarh and



Bhadrak; and Regional Research Centres (RRC), Allahabad and Silchar. Five villages nearer to each Institute/Unit/Centre have been selected for undertaking the programme. Community awareness programme on sanitation and nutrition are organized under the programme for educating the villagers on strategies for prevention of disease and improving health.

6.1.4 Premier Institutions of CCRUM

Though there are 23 centres of the CCRUM in different parts of country as depicted in Figure 58, premier institutions of CCRUM viz. Central Research Institute of Unani Medicine, Hyderabad; Central Research Institute of Unani Medicine, Lucknow; Regional Research Institute of Unani Medicine, Srinagar; and Regional Research Institute of Unani Medicine, Chennai have been described in succeeding sections.

6.1.4.1 Central Research Institute of Unani Medicine, Hyderabad

Central Research Institute of Unani Medicine (CRIUM), Hyderabad is the biggest research institute under Central Council for Research in Unani Medicine (CCRUM). Established in 1972, the institute is engaged in pharmaco-clinical research, drug standardization and quality control, and survey and cultivation of medicinal plants. Besides, General Out-patient Department (OPD), Mobile OPD and School Health Programme are also undertaken by the institute.



Figure 71: A view of Central Research Institute of Unani Medicine, Hyderabad - the leading institute for the treatment of Vitiligo in India



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Figure 72: Shri Shripad Naik, Union Minister of State for AYUSH (I/C) addressing the ceremony for foundation stone laying of new hospital block and inauguration of upgraded biomedical laboratory and guest house at CRIUM, Hyderabad on 30 September 2015. On the dais are Shri Charlakola Laxma Reddy, Health and Medical Minister, Government of Telangana, Shri Ajit M. Sharan, Secretary (AYUSH), Government of India, Prof. Rais-ur-Rahman, Adviser (Unani), Ministry of AYUSH and Director General, CCRUM, Shri Navdeep Rinwa, IAS and Dr. Munawwar Husain Kazmi, Deputy Director In-charge, CRIUM, Hyderabad.



Figure 73: A view of OPD wing of CRIUM, Hyderabad



Figure 74: Shri Shripad Naik, Union Minister of State for AYUSH (I/C) unveiling the plaque to lay the foundation stone of new hospital block at CRIUM, Hyderabad on 30 September 2015 in the presence of Shri Charlakola Laxma Reddy, Health and Medical Minister, Government of Telangana, Shri Ajit M. Sharan, Secretary (AYUSH), Government of India, Prof. Rais-ur-Rahman, Adviser (Unani), Ministry of AYUSH and Director General, CCRUM and others.

The institute is spread over 5½ acres of land. Presently, it has a 100-bed In-patient Department (IPD), besides well-equipped laboratories for physiology, pathology, biochemistry, radiology, pharmacognosy, and drug standardization. A New Hospital Block and a PG Scholar's House have been established at the institute. Biomedical Laboratory of the institute has been upgraded. The institute has a well-equipped Pharmacology Laboratory with a licensed animal house. The institute has "Ibn Baytār Herbal Garden" maintaining about 160 species of Unani medicinal plants. The OPD caters to the healthcare needs of over 250-300 patients every day. So far, over four hundred thousand patients have been registered and treated for various common and systemic ailments. The General OPD is also a source of recruiting research subjects. The institute has gained worldwide fame in the area of Vitiligo research, and registered over 1.23 lacs patients. The institute attracts patients from different parts of the country and abroad. Several drug combinations have been tried for the treatment of Vitiligo with success rate being over 86-88 percent. Similarly, in clinical trials on Sinusitis the herbal Unani drugs tried on more than 5,000 patients have yielded 80-85 percent success rate. Under Mobile Clinical Research Programme, 39 villages with 6,90,864 population have so far been covered. The institute has also been participating in School Health Programme and Pulse Polio Programme, besides extending Geriatric Care, Reproductive and Child Health Care and Counseling, Health Education etc.



Figure 75: Shri Shripad Naik, Union Minister of State for AYUSH (I/C) inaugurating the guest house of CRIUM, Hyderabad on 30 September 2015. On his right is Shri Charlakola Laxma Reddy, Health and Medical Minister, Government of Telangana while on the left is Shri Ajit M. Sharan, Secretary (AYUSH), Government of India.

The CRIUM, Hyderabad has been conducting clinical studies on Vitiligo, Hepatitis, Diabetes mellitus, Essential Hypertension, Chronic Sinusitis, Psoriasis, Hyperlipidaemia and Chronic Stable Angina. Clinical validation of pharmacopoeial drugs in Dementia, Urinary incontinence and Anaemia is also in progress. Studies on fundamentals of Unani Medicine are also being carried out for their scientific validation. Besides, the institute is also coordinating multicentric studies on Vitiligo, Hepatitis, Diabetes mellitus and Essential Hypertension. These studies are supervised by Ethics Committees of the institute, and registered with Clinical Trial Registry of India (CTRI).

Over the years, the institute has emerged as speciality centre of Unani treatment for skin diseases particularly Vitiligo. The institute has conducted extensive clinical studies on six combinations of oral and local Unani drugs namely UNIM-001 + UNIM-003, UNIM-004 + UNIM-005, UNIM-006 + UNIM-003, UNIM-006 + UNIM-027, UNIM-002 + UNIM-003, UNIM-001 + UNIM-027 in 45,885 cases of Vitiligo. The study has revealed 62-88 percent efficacy of the drugs depending upon the chronicity of the disease, part of the body involved and type of patches in different groups. These drugs have been found safe and free from side effects even on long term use. Two drug combinations, UNIM-001 + UNIM-003 and UNIM-004 + UNIM-005, have shown maximum efficacy. Physiological, etiopathological, psychological and heredo-familial studies have also been



Figure 76: Shri Shripad Naik, Union Minister of State for AYUSH (I/C) is being presented a memento by Prof. Rais-ur-Rahman, Director General, CCRUM on the occasion of foundation stone laying of new hospital block at CRIUM Hyderabad on 30 September 2015.

conducted at the institute to know the various aspects of the disease. The institute has organized a National Seminar and a Workshop on Vitiligo, and many papers on the Institute's research work have been presented at seminars and conferences and published in scientific journals.

Comparative clinical study on 4,974 patients of Sinusitis treated with two separate combinations of oral and inhalation drugs, UNIM-051 + UNIM-053 and UNIM-052 + UNIM-053, prepared from *Uṣṭukhūdūs*, *Īrsā*, *Filfil Siyāh* etc. established an efficacy of 61-79 percent. The drugs were found effective in relieving the clinical signs and symptoms within six to eight weeks of treatment. The combination UNIM-051 + UNIM-053 was comparatively more effective and safe. A monograph has been documented on this study.

A preliminary clinical study on the effects of Unani formulations in chronic stable angina and Hyperlipidaemia has shown good efficacy of the drugs. Further studies are in progress. The clinical studies on Infective Hepatitis 'A', 'B' and 'E' to test the efficacy of Unani formulations are also in progress.

The institute has scientifically validated the theory of Temperament and Humours in healthy human volunteers by establishing their concordance and discordance with modern



Chapter 6 – RESEARCH AND DEVELOPMENT



Figure 77: A view of the chemistry laboratory at CRIUM, Hyderabad



Figure 78: A view of the chemistry laboratory at CRIUM, Hyderabad



Figure 79: A view of the pharmacy at CRIUM, Hyderabad



Figure 80: A view of the pharmacy at CRIUM, Hyderabad



haematological, biochemical, and hormonal parameters. A study has also established prevalence of different metabolic diseases in persons of different Temperaments. Further, genetic studies on different temperaments have been planned.

The institute offers guidance and training to the M.D. (Unani) scholars of Government Nizamia Tibbi College, Hyderabad in Clinical Research Methodology, Pharmacognosy, Biostatistics, etc. Besides, guidance and training in Pharmacy is also being extended to Pharmacy students of Maulana Azad National Urdu University, Hyderabad.

The institute's Survey of Medicinal Plants Unit conducts surveys of forests of Andhra Pradesh and adjoining States for collection of medicinal plants and folk claims, and undertakes experimental cultivation of important medicinal plants. So far, 22 forest divisions have been surveyed, and 17,184 plant specimens collected. So far, 1,855 plant species have been identified and preserved in the institute's herbarium. The surveyors have so far collected about 40.9 tons of crude drugs from different forest areas. About 2,443 folk medicinal claims from various tribal pockets have been recorded.

The institute is also engaged in developing pharmacopoeial standards for Unani single and compound drugs and standard operating procedures (SOPs) for Unani compound formulations.

The institute has a full-fledged GMP-certified Pharmacy which produces research drugs for standardization, pharmacological studies and clinical trials. It has a rich library having books and journals on different subjects relating to Unani Medicine, besides some rare manuscripts. Bio-statistics division of the Institute is equipped with latest statistical analysis facility.

The institute has research collaborations with various scientific institutions such as Deccan Medical College, Centre for Cellular and Molecular Biology (CCMB) and National Institute of Nutrition (NIN), Hyderabad. The institute's clinical research facility has jointly been upgraded as clinical research site on WHO guidelines with financial support of Department of Science & Technology (DST) and CCRUM.

Ongoing Activities

- “Comparison of clinical efficacy and safety of PUVA sol and Unani formulation UNIM-401 (oral) and UNIM-403 (oil) and UVA in the treatment of chronic plaque psoriasis” undertaken at Department of Dermatology, All India Institute of Medical Sciences (AIIMS), New Delhi
- “Clinical study on Qarha Isna-e-Ashari (Duodenal Ulcer) with Unani Drug UNIM-701” undertaken at Department of Gastro-enterology and Hepatology, Owaisi Hospital and Research Centre, Deccan College of Medical Sciences, Hyderabad



- “Clinical study on Gastro-Esophageal Reflux Disease (GERD) with Unani Drug UNIM-701” undertaken at Department of Gastro-enterology and Hepatology, Owaisi Hospital and Research Centre, Deccan College of Medical Sciences, Hyderabad
- “Clinical study on Iltihab-e-Kabid Had (Acute Viral Hepatitis-HAV & HEV) with Unani drugs UNIM-107 and UNIM-117” undertaken at Department of Gastro-enterology and Hepatology, Owaisi Hospital and Research Centre, Deccan College of Medical Sciences, Hyderabad
- A multicentric single blind, randomized, parallel group, comparative study to compare the efficacy and safety of Coded Unani formulations UNIM-001+UNIM-003 with Psoralen in the treatment of Bars (vitiligo)
- A multicentric, Single blind, Randomized, parallel group study to compare the efficacy and safety of Coded Unani formulation UNIM-221 with Metformin in patients with *Ziabetus Sukkari Qism e Sani* (Diabetes Mellitus Type II).
- A Multi centric, Single blind, Randomized, parallel group study to compare the efficacy and safety of Coded Unani formulation UNIM-904 with Amlodipine in patients with *Zaghtuddam Qawi Lazmi* (Essential Hypertension).
- A Multi centric, Single blind, Randomized, Parallel group study to compare the efficacy and safety of Coded Unani formulation UNIM-118 with Silymarin in patients with *Waram al-Kabid* (Hepatitis A/B/C/E).
- Clinical Validation of a Unani Pharmacopoeial Formulation *Safūf Hajar al-Yahūd* in *Hasāh al-Kulya* (Nephrolithiasis)
- Clinical Validation of Unani Pharmacopoeial formulation *Qurs-e-Ziabetus Khaas* in *Ziabetus Sukkari Qism e Sani* (Diabetes Mellitus type-2)
- Clinical Validation of a Unani Pharmacopoeial formulation – *Itrifal Muqawwi Dimagh* in *Nisyān* (Amnesia) due to *Zu'f al-Dimāgh* (Cerebrasthenia)
- Clinical validation of Unani Pharmacopoeial formulations – *Majoon-e-Kundur*, *Jawarish-e-Zarooni*, and *Arq-e-Badiyan* in *Zu'f al-Masāna* (Over Active Bladder)
- Preliminary screening of *Munzij* and *Mushil* therapy (MUNB) followed by treatment with coded Unani drugs UNIM-046 (oral + local) in stationary / segmental / non-progressive cases of *Baras* (Vitiligo)
- Preliminary screening of *Munzij* and *Mushil* therapy (MUNB) followed by treatment with coded Unani drugs UNIM-047 (oral + local) in non-dermatome progressive cases of *Baras* (Vitiligo)
- Clinical study of coded Unani drugs – UNIM-001+003 in *Baras* (Vitiligo)



- Clinical study of coded Unani drugs – UNIM-004+005 in *Baras* (Vitiligo)
- Preliminary Screening of *Munzij* and *Mushil* therapy with coded Unani drugs UNIM-040+UNIM-041+UNIM-042 in *Baras* (Vitiligo)
- Clinical Study on *Baras* (Vitiligo) With (i) PTV-6+PTV-7 and TA-1 (topical) (ii) PTV-6+PTV-7 and TA-1 plus (topical)
- Comparative clinical study of coded Unani drugs UNIM-054 + 055 with and without *Munzij* *Mushil* Therapy in *Iltehab-e-Tajaweeef-e-Anaf* (Sinusitis)
- Comparative clinical study of UNIM-401(O)+UNIM-403(L) with and without *Munzij* *Mushil* Therapy in *Da-us-Sadaf* (Psoriasis)
- Comparative clinical study of UNIM-763 with and without *Munzij* *Mushil* Therapy in *Kasrat-e-Shahmuddam* (Hyperlipidaemia)
- Clinical study of coded Unani drug UNIM-115 in asymptomatic hepatitis B carriers
- Safety and efficacy evaluation of coded Unani drugs PTH-1, PTH-2; and PTH-3 in asymptomatic hepatitis B carriers-A pilot study
- Comparative, randomized, single blind, parallel, single centre study of efficacy, safety and tolerability of coded Unani Formulations (i) PTA-2+PTA-4 (ii) PTA-3+PTA-4 in *Tahajjur-e-Mafasil* (Osteoarthritis) – A Pilot study.
- Evaluation of anti-inflammatory activity of Unani formulation(s) - An *In-vitro* and *In-vivo* study
- Evaluate and study the effect of Unani formulation(s) on various biomarkers in patients with *Baras* (Vitiligo)
- Effect of Unani formulation(s) used for treatment of *Baras* (Vitiligo) on melanocytes: an *In-vitro* and *In-vivo* study
- Anti-cancerous activity of some Unani formulations on cancer cell line (a feasibility study)
- Anti-oxidant activity of some Unani single drugs viz., Turbud, Asgand, Suranjan, Khulanjan and Zanjabeel with DPPH and ABTS assay (a feasibility study)
- Developing UPLC fingerprint profile of the Unani coded compound formulation UNIM-041.
- Developing UPLC fingerprint profile of the Unani coded compound formulation UNIM-040.
- Genetic studies on theory of Humours with special reference to Diabetes Mellitus and Essential Hypertension



- Genetic Studies on theory of Humours with special reference to Vitiligo
- Genetic Studies on theory of Humours with special references to Hepatitis
- Genetic Studies on theory of Humours with special reference to Cancer & other diseases
- Genetic studies on theory of Humours with special reference to Healthy Volunteers.
- Pharmacogenomics of Unani formulations in Vitiligo (It is a study under Humours with special reference to Vitiligo).
- Safety studies on *Jawarish Jalinoos* and *Itrifal Ustukhuddus* in rats (Classical and modified version)
- Safety studies on *Marham Kharish Jadeed* and *Marham Safaid Kafoori*
- Drug Standardisation Research: Standardisation of Unani Compound drugs, Quality control of Unani Compound drugs, Preparation of selected Unani Compound formulations
- Pharmacognosy: Pharmacognostic studies of Unani single and compound drugs

6.1.4.2 Central Research Institute of Unani Medicine, Lucknow

Central Research Institute of Unani Medicine, Lucknow is one of the major centres under Central Council for Research in Unani Medicine (CCRUM). It was established as Regional Research Institute of Unani Medicine in 1982 and upgraded to Central Research Institute of Unani Medicine in 2002. The institute is engaged in scientific research on various aspects of Unani System of Medicine. The institute has a 25-bed In-patient Department (IPD), General Out-patient Department (OPD) and separate research OPDs for different research projects, besides well-equipped Pathology and Bio-Chemistry Laboratories. During the 33 years of its existence, the institute has made significant strides in its research programmes including clinical research, drug standardization, literary research and survey and cultivation of medicinal plants in addition to extension of health services through general OPD and mobile programme. The institute has also organized various IEC activities. Over the years, the institute has emerged as a leading centre of Unani treatment for Rheumatoid Arthritis (*Waja' al-Mafāṣil*).

The institute has conducted clinical and therapeutic studies on various diseases such as Rheumatoid Arthritis (*Waja' al-Mafāṣil*), Eczema (*Nār Fārsī*), Helminthiasis (*Dīdān-i Am'ā*), Gingivitis (*Waram-i Liththa*), Dental Plaque (*Lawḥa Sinniyya*), Tooth Hypersensitivity (*Dhahābu Mā' al-Asnān*), and Osteoarthritis (*Tahajjur al-Mafāṣil*).



Figure 81: A view of Central Research Institute of Unani Medicine, Lucknow

These studies have revealed high therapeutic efficacy of Unani medicines. Efficacy of Mundij and Mushil therapy and Cupping (*Hijāmat*) in cases of *Waja‘ al-Mafāṣil* has also been established.

The institute has conducted a clinical study on 978 patients of Rheumatoid Arthritis (*Waja‘ al-Mafāṣil*), in different groups. In the first group the patients were given coded drug WM-3 along with hot fomentation and local application of WML-4. In the second group, cupping was also applied along with the treatment given in the first group. In the third group Mundij and Mushil therapy was given before the treatment administered in the second group. The study has revealed 70-80 percent efficacy of the drugs. Results of the study have been published by the Council in the form of a success story on the disease. Besides, a number of research papers have also been published in various scientific journals. The study was multi-centric, and carried out at four centres of the Council. The institute has also organized a workshop on Rheumatoid Arthritis.

CRIUM, Lucknow was also part of a multi-centric Clinical study on Eczema and established 72-80 percent efficacy of a combination of oral and local formulations given to 427 patients for 12 weeks. The results of the study have been published by the Council in the form of a booklet narrating the success story. Research papers based on the study have also been presented at various Seminars and published in scientific journals.



A Unani drug used for the treatment of Rheumatoid Arthritis has been patented vide patent no. 250196, dated 23-12-2011 with the title “A novel herbal composition (sugar coated) effective against rheumatoid arthritis”.

The institute has also conducted a clinical study to evaluate the efficacy of coded Unani drug combinations DA-6 + DA-7 and DA-9 in Helminthiasis. The study conducted on 187 subjects revealed 75 percent efficacy in tapeworm, 80 percent in round worm and pin worm cases, and papers based on this study have been published. A Unani formulation used for the treatment of this disease has been patented vide patent no. 252163, dated 30-04-2012 with the title “A novel herbal composition and a process for preparation thereof effective against abdominal worm”.

The institute started research studies on Unani drugs for oral health in the year 1996. Pilot studies undertaken on 99 cases of Gingivitis in three different groups, revealed significant therapeutic effects of Unani formulations. The institute has succeeded in establishing the efficacy of Unani formulations in Gingivitis, Dental Plaque and Tooth Hypersensitivity. These studies were undertaken in collaboration with CSM Medical University, Lucknow. One of the drugs found most effective in Gingivitis has been patented.

The institute has also validated different forms of Regimenal Therapy such as cupping, fomentation, and massage in various diseases. Cupping applied in cases of rheumatoid arthritis along with pharmaco-therapy has been found efficacious in subsiding pain, stiffness, tenderness and other associated symptoms.

The institute has also been conducting clinical validation studies on pharmacopoeial drugs in Anaemia, Weakness of Urinary Bladder, and Rheumatoid Arthritis. The General OPD programme has been running at the institute since 1984 to provide the people with Unani treatment for common ailments and get research feedback. So far, approximately 8,20,645 people have benefited from this activity.

The Mobile Clinical Research Programme of the institute serves as a potential source of healthcare delivery to the people near their doorsteps. Over 6,17,000 people including 2,16,000 belonging to Schedule Castes/Scheduled Tribes, in 30 villages/urban slums, have so far benefited from this programme.

Under the School Health Programme, the institute conducts health check-ups of school children and provides free of charge Unani treatment to those found suffering from different ailments, besides raising their health awareness level through expert lectures. So far, 2,403 school children have benefited from the activity. Besides, the institute also runs an OPD for Reproductive and Child Health, and a Geriatric clinic. Under the Information, Education and Communication programme, the institute organizes Seminars, Workshops, Health camps and Health fairs, and participates in similar activities organized by other institutions, besides Pulse Polio Programme.



Ongoing Activities

The CRIUM, Lucknow is presently engaged in the following research programmes:

- Clinical trial on Vitiligo – “Multicentric single blind randomized parallel group comparative study to compare the efficacy and safety of coded Unani formulation UNIM-001iUNIM-003 with Psoralen in the treatment of Bars (Vitiligo)”
- Clinical trial on Diabetes mellitus – “A Multicentric single blind randomized parallel group study to compare the efficacy and safety of coded Unani formulation UNIM-221 with Metformin in patients with Ziabetus Sukkari Qism e Sani (Diabetes mellitus Type-II)”
- Development of SOPs for MM Therapy in cases of Waja-ul-Mafasil (Rheumatoid Arthritis) involving different humours and optimizing the duration of Nuzj
- Development of SOPs for MM Therapy (Munzij-e-Balgham) in cases of *Siman Mufriṭ* (Obesity)
- Preliminary screening of coded Unani Drugs UNIM-1201 + UNIM-1202 in cases of *Siman Mufriṭ* (Obesity)
- Clinical Validation of Unani Pharmacopoeial Formulation *Qurs-e-Didan* in *Didan ‘al Am’ā* (Intestinal Worms)
- Clinical Validation of Unani Pharmacopoeial formulations *Majoon-e-Suranjan* and *Habb-e-Azaraqi* in *Niqris* (Gout)
- Clinical Validation of Unani Pharmacopoeial formulations *Jawarish Kamooni* and *Arq-e-Badiyan* in *Su ‘al-Hadm* (Dyspepsia)
- Clinical Validation of Unani Pharmacopoeial formulations in *Sayalān al-Rahim* (Leucorrhoea)
- Clinical validation of regimenal therapy – Cupping in Waja-ul-Mafasil (Rheumatoid Arthritis)
- Geriatric/senior citizen and RCH OPD
- Extension of health services
- IEC activities – participation in various national programmes and health fairs/ Arogyas and health awareness programmes
- HRD activity – organization of and participation in workshops and training programmes



6.1.4.3 Regional Research Institute of Unani Medicine, Srinagar

Regional Research Institute of Unani Medicine (RRIUM), Srinagar, is one of the major institutes under Central Council for Research in Unani Medicine (CCRUM). The institute came into existence in 1986. The research activities in Unani System of Medicine in the State of Jammu & Kashmir started under the CCRUM in August 1979 with the establishment of a Survey of Medicinal Plants Unit (SMPU) and a Drug Standardization Research Unit (DSRU). Later, a Clinical Research Unit (CRU) was set up in 1983, and a Mobile Clinical Research Unit (MCRU) in 1985. These units were amalgamated to establish the RRIUM, Srinagar. A separate Toxicology Unit in 1995 and a Molecular Biology Laboratory in 2009 were added in the institute. The RRIUM, Srinagar has a Research Out-patient Department (ROPD), a General Out-patient Department (GOPD), a 40-bed In-patient Department (IPD) well-equipped with Pathology, Biochemistry, Molecular Biology, Toxicology and Radiology laboratories. The institute is engaged in preclinical, clinical research, mobile clinical research, drug standardization, survey and cultivation of medicinal plants, besides Information, Education & Communication (IEC) activities and extension of health services.

Over the last two-and-a-half decades the institute has made considerable progress in its various research programmes and emerged as a centre of Unani treatment for Bronchial Asthma.

Under its Clinical Research Programme, the institute is undertaking clinical studies on Bronchial asthma (*Dīq al-Nafas*), Vitiligo (*Baraṣ*), Psoriasis (*Dā' al-Sadaf*), Rheumatoid arthritis (*Waja' al-Mafāṣil*), Sinusitis (*Iltihāb-i Tajāwīf-i Anf*), and various forms of



Figure 82: A view of Regional Research Institute of Unani Medicine, Srinagar



Figure 83: Shri Ajit M. Sharan, Secretary (AYUSH), Government of India and Prof. Rais-ur-Rahman, Director General, CCRUM visiting Toxicology Laboratory of RRIUM, Srinagar.

Regimenal Therapy like Leeching, Cupping etc. The institute has undertaken a study on the efficacy of Leeching in Frostbite, Essential Hypertension, and Varicose veins, besides validation of Cupping in Osteoarthritis. The institute attracts patients seeking Unani treatments for common, seasonal, and chronic ailments, not only from Srinagar but also from other districts of Jammu and Kashmir.

In addition to General Outpatient services, weekly OPDs for Geriatric care and Reproductive and Child Health are also functioning. So far, 7,94,276 patients have been treated in these OPDs. The mobile clinical research unit caters the needs of rural population which has so far extended healthcare to 2,15,843 people in 34 rural areas and urban slums in the valley. The institute has also provided health check-up facility and health education to 28,981 school children in 43 schools.

Clinical studies on Bronchial Asthma was initiated at the RRIUM, Srinagar in the year 1987 to evaluate the therapeutic efficacy of coded Unani formulation UNIM-352 in the semi-solid dosage form. Palatability of the formulation was improved by removing its pungent and repulsive odour. Oral administration of the formulation in the dose of 10 gm twice daily with lukewarm water for a period of 90 to 120 days in 2975 patients revealed an efficacy rate of 74 percent with significant reduction in severity and intensity of the asthmatic attack without any side effects. Controlled clinical study of the same drug with conventional allopathic treatment conducted at Vallabhbhai Patel Chest Institute, University of Delhi, Delhi under an MoU also confirmed its



therapeutic effects. The drug has been patented by the Council vide patent no. 244034 dated 19.11.2010 titled “A herbal composition against Bronchial Asthma and process for preparation thereof”.

RRIUM, Srinagar was also part of a multicentric Clinical study on vitiligo, and has established the efficacy of a combination of oral and local formulations in 2,729 patients. The oral formulation was prepared from plant drugs such as *Psoralea corylifolia* Linn., *Terminalia chebula* Retz., *Zingiber officinale* Rosc. etc. The drugs for local application, UNIM-003 and UNIM-005, were prepared from *Psoralea corylifolia* Linn., Silicate of alumina and Oxide of iron mixed with some other herbo-mineral drugs. Based on the results of the studies conducted on Vitiligo, the institute’s researchers have published papers in reputed scientific journals. Besides, the data has been published in the monograph on Vitiligo brought out by the Council.

The institute also participated in a multicentric clinical study of two Unani formulations in 195 patients of Psoriasis (Figure 84). The results of the study have been published by the Council in the form of booklet. Also, papers based on the study have been published in national and international journals.

Clinical study conducted at the institute on a combination of two polyherbal Unani formulations in 3878 patients of Rheumatoid arthritis has revealed 63 percent efficacy of the drugs. The results of the study have been published as a success story brought out by the Council. Besides, papers on this study have also been published in scientific journals.

Clinical study conducted on a combination of Unani drugs for oral use and inhalation in 60 patients of Sinusitis was also undertaken at the institute. The formulations were prepared from *Lavandula stoechas* Linn., *Iris ensata* Thunb. etc. The drug for steam inhalation was prepared from *Trachyspermum ammi*, *Mentha arvensis* Linn. etc. This was also a multicentric study and monograph on the study has been published.



Figure 84: Efficacy of Unani Drugs in Psoriasis



Different types of regimenal therapy such as cupping and leeching were validated in various diseases. Cupping was done in 62 patients of osteoarthritis and was found effective in subsiding pain, stiffness, tenderness and other associated symptoms. Leeching was applied to 280 patients to treat various diseases including frostbite. Cupping was done in 1655 patients whereas leeching was done in 141 patients suffering from various diseases attending general OPD.

The institute also extends healthcare services to people suffering from various common ailments through OPD and Mobile OPD. Special clinics are conducted to provide free treatment to old age patients and RCH patients.

RRIUM, Srinagar has also succeeded in establishing preclinical safety of 22 Unani compound formulations. Results of these studies have been published by the Council in the monograph titled “*Pharmacological and Toxicological Studies on Unani Single and Compound Drugs*”.

Department of Science and Technology (DST), Government of India has recently funded a project worth Rs. 46.2 million for strengthening preclinical facility at RRIUM, Srinagar. The project started in June, 2012 under an MOU signed between CCRUM and DST. The centre will undertake routine mandatory toxicity investigations like acute, sub-acute and chronic toxicity studies in a focused manner on multi-molecular AYUSH products. It will ensure the acceptability of these preparations among a wider international community of physicians and patients as well as ensure their sustainability in future in India. The facility would also enhance human resource development. The institute is upgrading its laboratories to acquire Good Laboratory Practices (GLP) certification from National GLP Compliance Monitoring Authority (NGCMA), Government of India so that the data generated in the facility could be acceptable in Organization for Economic Cooperation and Development (OECD) countries as per the Mutual Acceptance of Data (MAD) Act (Figure 85).



Figure 85: A view of drug standardization laboratory, RRIUM, Srinagar



Under the Drug Standardization programme, RRIUM Srinagar has developed pharmacopoeial standards for 126 compound Unani formulations, out of which 50 have been published in a CCRUM publication '*Physico-chemical Standards of Compound Formulations*'. Detoxification techniques of *Nux-vomica* as mentioned in Unani classics were scientifically validated using HPLC and Spectrophotometer by the estimation of strychnine, and published in an international journal. A part of this work was presented at an international conference at Churchill College, London. Different samples of oil of *Viola odorata* were analyzed in order to validate methods of its preparation, by estimation of serotonin. This validation study has been published.

The institute has also developed collaborations in different areas of research with reputed scientific institutions and universities. The institute was recognized by the University of Kashmir in 1997 as a Centre for collaborative research on topics related to Unani Medicine and allied sciences for the award of M.Phil. and Ph.D. degrees. Besides, chemoprofiling of *Salix caprea*, Anti-hyperlipidaemic activity of *Paeonia emodi*, and chemical analysis of medicinal plants mentioned in the folklores have been conducted. Under this collaborative venture, a number of papers have been published in reputed national and international journals with good impact factor.

The survey of medicinal plants unit at the institute has conducted 200 ethno-botanical surveys in 65 forest areas falling under 16 forest divisions of Jammu & Kashmir, and developed a database on the availability of medicinal plants especially those used in Unani System of Medicine in the State (Figure 86). During these surveys 13,231



Figure 86: The survey team of RRIUM, Srinagar collecting Folkclaim from Drass,
the world's second coldest inhabited place



plant specimens belonging to 476 species have been collected and maintained in the herbarium. The ethnobotanical studies have resulted in the collection of 505 folk claims. These claims have been documented and published in the CCRUM publications titled “*Medicinal Plants in the Folklore of Kashmir Himalayas*” and “*Medicinal Plants of North India*”. Experimental cultivation of some important medicinal plants has been undertaken successfully. A herbal garden, a nursery of medicinal plants, and a Museum are also maintained in the institute.

Ongoing Activities

The institute is presently engaged in the following activities:

- Preclinical safety studies of six Unani formulations and toxicity evaluation of Kushta Hajar al-Yahud and Kushta Qalai
- Clinical trial on Vitiligo—“Multicentric single blind randomized parallel group comparative study to compare the efficacy and safety of coded Unani formulation UNIM-001+UNIM-003 with Psoralen in the treatment of Bars (Vitiligo)”
- Clinical studies on Hypertension—“Multicentric single blind randomized parallel group study to compare efficacy and safety of coded Unani formulation UNIM-904 with Amlodipine in patients with Zaghtuddam Qawi Lazmi”
- Clinical validation of a Unani pharmacopoeial formulation *Safoof Hajar-ul-Yahoo* in *Hisāh al-Kulya* (Nephrolithiasis)
- Clinical validation of a Unani pharmacopoeial formulation *Sharbat Ejaz* in *Surfa Yābis* (Dry Cough)
- Clinical validation of a Unani pharmacopoeial formulation *Itrifal Shahtara* and *Marham Kharish Jadeed* with *Aab-e-Barg-e-Neem* in *Jarab* (Scabies)
- Effect of Co-administration of Unani Pharmacopoeial formulations – *Qurs Tabasheer Sartani* and *Arq Hara Bhara* with anti-tuberculosis (CAT-I) drugs in adult albino Wistar rats
- Standardization of compound Unani formulations
- Survey of medicinal plants used in Unani System of Medicine
- Experimental Cultivation of medicinal plants
- Clinical validation of Regimenal Therapy
- Geriatric care programme
- RCH counselling and care
- School Health Programme



- Extension of health services
- IEC and HRD activities

Important Research Publications

- Ara I, Akbar S, Bukhari B and Tyagi N (2015). Response of Unani herbal medicine in withdrawal of corticosteroids and bronchodilators in bronchial asthma patients, *IJAAYUSH*, 4(1): 235-242.
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- Bhat AI, Humma, Habib A, Shah A, Mustafa KH, Afroza, *et al* (2014). Leech therapy in Alopecia areata – A single case report. *Case Study Case Rep.*, 4(3): 118-124.
- Ghazanfar K, Ganai BA, Akbar S, Mubashir K, Dar SA, *et al* (2014). Antidiabetic activity of *Artemisia amygdalina* Decne in Streptozotocin induced Diabetic rats, *BioMed Res Int.*, 1-10.
- Iqbal A, Shah A, Habib A, Humma, Jan A, Kounser (2014). Management of Diabetic Foot Ulcer with Leech therapy - A Case report, *J Diabetes & Health*, 107: 210-213.
- Mubashir K, Ganai BA, Ghazanfar K, Akbar S (2014). Evaluation of anti-arthritis potential of Methanolic extract of *Gentiana kurroo* Royle, *Arthritis*, 1-6.
- Mushtaq A, Akbar S, Zargar MA, Wali AF, Malik AH, *et al* (2014). Phytochemical screening, physicochemical properties, acute toxicity testing and screening of hypoglycaemic activity of extracts of *Eremurus himalaicus* Baker in normoglycaemic Wistar strain albino rats, *BioMed Res Int*, 1-6.
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- Ara I, Iqbal M, Ara N, Bukhari B (2012). Herbal treatment in Bronchial Asthma – A Study, *Indian Journal of Unani Research*, 3(3): 22-33.
- Rasool R, Ganai BA, Akbar S, Kamili AN, Masood A (2010). Phytochemical screening of *Prunella vulgaris* L-An important medicinal plant of Kashmir, *Pak. J. Pharm. Sci.*, 23(4) 399-402.
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6.1.4.4 Regional Research Institute of Unani Medicine, Chennai

The Regional Research Institute of Unani Medicine (RRIUM), Chennai is the first institute established in 1979 under Central Council for Research in Unani Medicine (CCRUM). The institute is engaged in undertaking various research programmes including clinical research, drug standardization, survey and cultivation of medicinal plants and pharmacy in addition to extension of health services through general OPD and mobile programme. The Clinical Research facility at the institute is well-equipped with Bio-Chemistry, Pathology, Radiology, and Statistics departments. At the institute, under the clinical research activity, efficacy of Unani drugs is being tested in cases of Infective Hepatitis (*Iltihāb-i Kabid Ḥādd*), Rheumatoid arthritis (*Waja’ al-Mafāṣil*), Filariasis (*Dā’ al-Fil*), Diabetes mellitus (*Dhayābīṭus Sukkārī*), and Malaria (*Hummā Ijāmiya*). Besides, studies on the immunomodulatory, and cosmeceutical effects of Unani drugs are also being conducted. The institute also organizes IEC activities to popularize



Figure 87: A view of Regional Research Institute of Unani Medicine, Chennai

Unani System of Medicine. Over the years, the institute has made considerable progress in its various research programmes, and emerged as an important centre of Unani treatment.

The General Out-patient Department (GOPD) caters to the needs of patients of common disease and has so far treated about two million patients for various ailments. The GOPD is a source for finding research subjects for ongoing clinical research programme. Clinical studies to evaluate the therapeutic efficacy of Unani formulations consisting of *Trianthema decandra* L., *Piper nigrum* L. etc. in cases of Filariasis was conducted in the institute. A combination of oral and local formulations for a period of 80 days in 1239 patients revealed an efficacy rate of 70-75 percent with significant reduction in severity and intensity of signs and symptoms of disease. Another double blind standard controlled study on 116 patients of Filariasis was conducted to compare the efficacy of Unani formulation with conventional allopathic drug, DEC in collaboration with Department of Medicine, Government Hospital, Chennai. This study further confirmed the efficacy of Unani drug. Further, a study on immuno-modulatory effect of Unani drug used in Filariasis was also conducted in collaboration with Department



of Microbiology, Dr. A.L. Mudaliar P.G. Institute of Basic Medical Sciences, Taramani, University of Madras, Chennai. Based on these studies, a technical report on clinical studies on Filariasis was published by the Council in 1992. The results of these studies have been presented at different workshops and seminars, and papers based on these findings have been published in scientific journals.

A poly-herbal Unani formulation comprising plants including *Artemesia absinthium*, *Caesalpinia bonducella*, *Punica granatum* etc. was evaluated in 533 *Plasmodium vivax* positive patients of Malaria. This open-label study was conducted in collaboration with the Central Malaria Laboratory, Chennai. Four capsules of 500 mg, given twice daily to the patients for a period of ten days, showed significant therapeutic response in subsiding all the clinical signs and symptoms and eradicating the parasite in 85 percent cases.

A combination of two polyherbal Unani formulations tested in 1147 patients of Rheumatoid arthritis has shown 70-80 percent efficacy. The success story about the study has been published by the Council. Besides, papers based on this study have been published in scientific journals. The Council has also organized a workshop on Rheumatoid arthritis. Seven new formulations, prepared from some common medicinal plants such as *Solanum nigrum*, *Cichorium intybus*, flowers of *Butea monosperma* etc. tried on 3318 patients of Infective hepatitis in different treatment groups revealed significant therapeutic effects in subsiding the clinical signs and symptoms and normalizing the biochemical and pathological parameters within 3-6 weeks of the treatment.

The Drug Standardization Research Unit (DSRU) at the institute is engaged in developing pharmacopoeial standards for Unani single and compound drugs and standard operating procedures (SOPs) for Unani compound formulations. The institute has been authorized by the Drug Controller, Government of Tamil Nadu as one of the drug testing laboratories to test the Unani, Siddha and Ayurveda drug samples. The ISO 9001:2008 certification for the institute is under progress.

The Survey of Medicinal Plants Unit (SMPU) has so far surveyed forest divisions in 13 districts of Tamil Nadu, and collected 18,939 specimens of plants representing over 1,100 species. The Unit has identified and documented more than 300 species of Unani medicinal plants, and has cultivated 14 medicinal plants on experimental and field scale basis.

The institute has published its research findings in reputed scientific journals besides participating in national and international scientific events. It has also organized various Exhibitions, Health Camps, Health fairs etc. The institute has also organized various training programmes in the area of Clinical research, biostatistics, Bio-medical ethics, IPR, pharmacy and hospital management. Also, the researchers of the institute have been exposed to various training programmes in the field of clinical research, medical laboratory technology, immunology, ethnobotany, biostatistics and hospital/office administration.



Ongoing Activities

RRIUM, Chennai is presently engaged in the following research studies:

- A multicentric, single-blind, randomized controlled clinical trial to compare the efficacy and safety of a coded Unani formulation – UNIM-118 with Silymarin in *Waram al-Kabid* (Hepatitis A/B/C/E)
- Clinical trial of a coded Unani drug UNIM-115 in cases of *Ilthihāb al-Kabid Hād* (Infective Hepatitis)
- Preliminary clinical screening of coded Unani drugs – UNIM-318 and UNIM-319 in Primary Osteoarthritis Grade-I & II
- Clinical validation of a Unani Pharmacopoeial formulation – *Majoon-e-Nisyan* in *Nisyān* (Amnesia)
- Clinical validation of a Unani Pharmacopoeial Formulation – *Habb-e-Shifa* in *Nazla Harr* (Common cold)
- Clinical validation of a Unani Pharmacopoeial formulation – *Qurs-e-Ziabetus Khas* in *Zayābitus Sukkari Qism-e-Sāni* (Diabetes Mellitus type-2)
- Clinical validation of Unani Pharmacopoeial Formulations *Majoon-e-Suranjan* and *Habb-e-Azaraqi* in *Niqrīs* (Gout)
- Clinical validation of a Unani Pharmacopoeial Formulation – *Safoof Hajr-ul-Yahood* in *Hasāh al-Kulya* (Nephrolithiasis)
- Clinical validation of a Unani Pharmacopoeial formulation – *Qurs Asfar* for symptomatic relief in *Sharā Muzmin* (Chronic Urticaria)
- Clinical Validation of a Unani Pharmacopoeial Formulation – *Raughan Ikseer* for symptomatic relief in *Waja' al-Asnān* (Toothache)
- Clinical validation of a Unani Pharmacopoeial formulation – *Arq Ajeeb* for symptomatic relief in *Sudā'* (Headache)
- Clinical Validation of a Unani Pharmacopoeial formulation – *Sharbat-e-Toot Siyah* in *Waram-i-Halaq* (Pharyngitis)
- Clinical validation of a Unani Pharmacopoeial formulation – *Zaroor-e-Kath* for symptomatic relief in *Qulā'* (Stomatitis)
- Clinical Validation of a Unani Pharmacopoeial Formulation – *Zimad-e-Bars* in *Kalaf* (Melasma)
- Geriatrics OPD for senior citizens
- RCH counselling and care
- School Health Programme



Figure 88: Shri Shripad Naik, Union Minister of State for AYUSH (I/C), Prof. Rais-ur-Rahman, Director General, CCRUM and Dr. R.K. Manchanda, Director General, CCRH lighting the lamp to inaugurate the foundation stone laying ceremony of combined building for RRIUM, Mumbai and Regional Research Institute of Homoeopathy on 28 December 2015.

- Extension of Health Services
- IEC and HRD activities

6.2 EXTRA-MURAL RESEARCH

Central Council for Research in Unani Medicine, apart from its intra-mural research activities, is vested with support programme of extra-mural research (EMR), which is implemented by the Ministry of AYUSH. The Council is the Secretariat for scrutiny and evaluation of EMR projects through internal scrutiny committee. In this initiative, accredited scientific and medical institutions are supported to undertake project-based research studies in prioritized areas of Unani Medicine. The 56 projects awarded under this programme pertain to drug research, pharmacological evaluation, pre-clinical and clinical studies, etc. The objectives of extra-mural research programme are as follows:

- To develop Research and Development (R & D)-based AYUSH drugs for prioritized diseases;
- To develop evidence-based support on the efficacy of AYUSH drugs and therapies;



Figure 89: Shri Shripad Naik, Union Minister of State for AYUSH (I/C) and other dignitaries at India-US Workshop on Traditional Medicine held during 3–4 March 2016 at New Delhi.

- To encourage research on classical texts and investigate fundamental principles of AYUSH systems;
- To generate data on heavy metals, pesticide residues, microbial load, safety/toxicity etc. in the raw drugs and finished Ayurveda, Siddha, Unani and Homoeopathy drugs;
- To develop joint research ventures among the AYUSH Department and other Organizations/Institutes.

Under the scheme various research projects have been undertaken and are being undertaken by institutions other than CCRUM and its centres.

6.3 AYUSH RESEARCH PORTAL

The AYUSH Research Portal is meant for disseminating evidences, scientific and research data on AYUSH systems, and the current research activities taking place across the globe. The portal contains different search engines for the convenience of the users. The information can be searched by advanced search system including Simple Search, Search with AYUSH terminology, title, Author's name, journal, institute/department. The 2,169 research articles related to Unani System of Medicine are uploaded in the portal ayushportal.ap.nic.in, designed, developed and managed by National Institute of Indian Medical Heritage (NIIMH), Hyderabad. Of them, 367, 183, 1043 and 576 articles are related to clinical, preclinical, drug and fundamental research respectively.



The screenshot shows the AYUSH Research Portal homepage. At the top, there's a banner with the text 'AYUSH RESEARCH PORTAL', 'Evidence Based Research Data of AYUSH Systems at Global Level', and 'Ministry of AYUSH, Government of India'. Below the banner, there are links for 'Home', 'Search', 'Login', 'About Us', 'Contact Us', 'Feedback/Suggestions', and a language selection dropdown. A counter indicates 'Users Online : 33 | Article Views : 133523 | Downloads : 36191'. The main content area has sections for 'ADVANCED SEARCH' (with dropdowns for 'Medical System' and 'Category'), a search bar, and a link to 'Search with AYUSH Terminology'. Below this, there are buttons for 'CLINICAL RESEARCH' (367), 'PRE-CLINICAL RESEARCH' (103), 'DRUG RESEARCH' (1043), and 'FUNDAMENTAL RESEARCH' (576). Further down, there are dropdown menus for 'Select medical systems' (with options like Ayurveda, Yoga and Naturopathy, Unani, Siddha, Homoeopathy, Sowa Rigpa, and AI), 'Select body system', and 'Select disease (English)'. A 'Clear' button is also present. At the bottom left, there's a link to 'Unani Terminology'.

Figure 90: A webpage on Unani Medicine at AYUSH Research Portal

6.4 GOOD CLINICAL PRACTICE

Ayurveda, Siddha and Unani (ASU) systems of medicine are experiential and time-tested in nature but have been constantly developed with scientific inputs. Their therapeutic potential and relevance have been explored on scientific parameters using acceptable methodologies and emerging research designs. In the era of scientific endeavours, it becomes important to keep pace with the latest tools and techniques for validation of treatment modalities and methodologies of ASU systems in the pursuit of finding solutions for many diseases and disease conditions, with which the human population is increasingly getting afflicted. Therefore, with the objective to guide the direction of clinical research on ASU remedies and therapies, the Department of AYUSH, Ministry of Health & Family Welfare, Government of India has brought out Good Clinical Practice (GCP) Guidelines for conducting clinical trials. The guidelines are addressed to investigators and all those, who are interested, concerned, involved and affected with the conduct of clinical trials on ASU Drugs. The objective is to encourage conduct of clinical studies in ASU systems in accordance with ethical and scientific standards as well as for protection of safety aspects and rights of participants. Adhering to methodical documentation of trials as per GCP guidelines is aimed at bringing credibility to the efforts of persons and institutions involved in clinical trials and the process as a whole will enhance the visibility and capability of ASU in the management of global health problems. The fundamental tenets of Good Clinical Practice guidelines for ASU medicines include protection of human rights as a subject in a clinical trial. It also provides assurance of the safety and efficacy of the newly developed as well as conventionally used ASU formulations. These guidelines include standards of how clinical trials should be conducted; and define the roles and responsibilities of clinical



trial sponsors, clinical research investigators, monitors etc. Apart from inculcating the culture of conducting ASU intervention-based clinical studies in the country in accordance with requisite scientific standards and appropriately designed methodologies, it is intended that results and findings of clinical trials are properly recorded, analyzed and reported. Sincere adherence to these guidelines will facilitate the acceptance of clinical data by national and international scientific fraternity.

6.5 IMPORTANT RESEARCH PAPERS

The main areas of research in Unani Medicine include Validation of Fundamentals, Clinical and Pharmacological Research, Drug Standardization and Quality Control, Survey and Cultivation of Medicinal Plants, and Literary Research. Some of the important research papers published in these are as follows:

Fundamental Research

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Clinico-Pharmacological

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- Qamar, U.; Sayeed, A.; Siddiqui, K.M. (2014). Unani Medicinal Plants with Anti-HIV Potential. *Research & Reviews: A Journal of Pharmacognosy*, 1(2): 11-22.
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Chapter 7

EDUCATION AND PRACTICE

Education and practice of Unani Medicine has been prevalent in India for centuries. Various courses of study on Unani Medicine were being conducted by State Boards, and Faculties of the Universities. With the establishment of Central Regulatory Body since 1971, uniform course curricula and syllabi were framed for implementation across the country. Presently, there are well-defined regulations to establish educational institutions and to register the practitioners of Unani System of Medicine, as a result of the Indian Medicine Central Council (IMCC) Act, 1970 coming into force. The Central Council of Indian Medicine (CCIM) is regulatory body under the Act to prescribe and enforce minimum standards of education and to maintain a central register of practitioners of Indian Systems of Medicine including Unani Medicine. The CCIM representatives undertake physical inspection of the teaching institutions to verify the infrastructural and training facilities. The CCIM also maintains a Central Register of Unani Practitioners.

7.1 EDUCATION

The education and training facilities in Unani System of Medicine are presently being monitored by the CCIM. One of the objectives of the CCIM is to prescribe minimum educational standards in Indian systems of medicine including Ayurveda, Siddha and Unani Tibb, besides advising the Central Government on matters relating to recognition or derecognition of medical qualifications.

The graduation course of study in Unani Medicine leading to the award of the degree of Bachelor of Unani Medicine and Surgery (BUMS) (*Kāmil-i Tibb o Jarāḥat*) is governed under the provisions of Indian Medicine Central Council (Amendment) Regulations, 1995. The postgraduate courses leading to the award of Doctor of Medicine (*Māhir-i Tibb*) and Master of Surgery (*Māhir-i Jarāḥat*) degrees are regulated by Indian Medicine Central Council (Postgraduate Unani Education) Regulations, 2007.

The regulations to establish Unani medical institutions are called Indian Medicine Central Council (Minimum Standard Requirements of Unani Colleges and attached Hospitals) Regulations, 2013 notified by Government of India in the Official Gazette dated 19th February 2013. The Unani colleges and their attached hospitals shall mandatorily fulfill the minimum standard requirements of infrastructure and teaching and training facilities mentioned in the Regulations for consideration of grant of permission for undertaking admissions to undergraduate and postgraduate courses. The teaching hospital fulfills all statutory requirements of the concerned State or Union Territory or local authority to establish and run the hospital. The ratio of students with the number of beds in In-patient Department, bed occupancy, and Out-patient Department attendance shall



be 1:1, 40 percent and 1:2 respectively for undergraduate course. There shall be a minimum of 30 full-time teachers and 45 full-time teachers appointed on regular basis for intake capacity of 60 students and 61-100 students respectively with an addition of eight part-time teachers of modern medicine for each slab. Each Unani College requires a minimum of 14 teaching departments at undergraduate level. For institutions offering postgraduate education, the concerned Department must have a minimum of one higher faculty (Professor/Reader/Associate Professor) and one lower faculty (Assistant Professor/Lecturer) in addition to required undergraduate teaching staff.

7.2 EDUCATIONAL INSTITUTIONS

Presently there are 46 academic institutions that impart Unani medical education. Of them, eight offer both undergraduate and postgraduate courses, 37 offer only undergraduate courses, and one – National Institute of Unani Medicine (NIUM), Bengaluru – offers only postgraduate courses. The postgraduate courses are taught in 10 disciplines of Unani Medicine. The NIUM, Bengaluru and Government Nizamia Tibbi College (GNTC), Hyderabad have also started Ph.D. programme in Unani Medicine. All the educational institutions are affiliated to universities under which jurisdiction the examination system is controlled. The curriculum prescribed by the CCIM is uniformly followed in these institutions. These 46 institutions have admission capacity of 2,131 undergraduates and 147 postgraduate scholars.

Following colleges offer postgraduate courses:

1. **Ayurvedic & Unani Tibbia College, Karol Bagh, New Delhi:** The college has postgraduation in four subjects - *Mu‘ālajāt* (02 seats), *‘Ilm al-Šaydala* (03 seats), *Manāfi‘ al-A‘dā’* (02 seats), and *Amrād-i Niswān o Qibālat* (02 seats).



Figure 91: A view of Ayurvedic & Unani Tibbia College, Delhi



2. **Ajmal Khan Tibbiya College, Aligarh:** The college has postgraduation in six subjects - *Kulliyāt* (04 seats), *‘Ilm al-Adwiya* (04 seats), *Mu‘alajāt* (04 seats), *Tahaffuzī o Samājī Tibb* (01 seat), *Qibālat o Amrād-i Niswān* (01 seat), and *Jarāhat* (02 seats).
3. **Government Nizamia Tibbi College, Hyderabad:** The college has postgraduation in five subjects - *Mu‘alajāt* (10 seats), *‘Ilm al-Adwiya* (05 seats), *Qibālat o Niswān* (09 seats), *Tahaffuzī o Samājī Tibb* (05 seats), and *Kulliyāt-i Umūr Tabī‘iyya* (05 seats).
4. **Faculty of Medicine (Unani), Jamia Hamdard, New Delhi:** The faculty has postgraduation in three subjects - *Mu‘alajāt* (02 seats), *‘Ilm al-Adwiya* (03 seats), and *Tahaffuzī o Samājī Tibb* (03 seats).
5. **Mohammadia Tibbia College & Assayer Hospital, Malegaon:** The college has postgraduation in two subjects - *‘Ilm al-Adwiya* (02 seats), and *Qibālat o Amrād-i Niswān* (02 seats).
6. **Zuleikhabai Valy Mohammad Unani Medical College & Hospital, Pune:** The college has postgraduation in three subjects - *Tahaffuzī o Samājī Tibb* (06 seats), *Mu‘alajāt* (06 seats), and *‘Ilm al-Jarāhat* (03 seats).
7. **Jamia Tibbia Deoband (UP):** The college has postgraduation in one subject - *Mu‘alajāt* (02 seats).



Figure 92: A view of Ajmal Khan Tibbiya College, AMU, Aligarh



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Figure 93: A view of Government Nizamia Tibbi College, Hyderabad



Figure 94: A view of Faculty of Medicine (Unani), Jamia Hamdard, Delhi



8. **Deoband Unani Medical College, Deoband, Saharanpur:** The college has postgraduation in four subjects - *Jarāḥat*, *Mu‘alajāt*, *Manāfi‘ al-A‘dā’* and *Qibālat* (02 seats each).
9. **National Institute of Unani Medicine, Bengaluru**

7.3 NATIONAL INSTITUTE OF UNANI MEDICINE

National Institute of Unani Medicine (NIUM), Bengaluru established in 2004 is an autonomous organization under Ministry of AYUSH, Government of India. The institute is an apex educational institution of Unani System of Medicine pursuing the following objectives:

- To impart postgraduate education in Unani System of Medicine
- To undertake scientific research in various subjects of Unani System of Medicine and provide training
- To provide medical care through Unani System of Medicine to the suffering humanity

The institute has all necessary infrastructure including state-of-the-art Scientific Research Laboratories, Library, Hospital, Regimenal Therapy Centre, Animal House, Pharmacy, Drug Museum, Herbal Garden, hostels for boys and girls with facilities for indoor and outdoor games etc. At present the NIUM library has 13,578 books on Unani System



Figure 95: A view of National Institute of Unani Medicine (NIUM), Bengaluru



of Medicine and other related fields along with the facility to search online about 250 journals via Helinec consortium and 11 offline journals.

The NIUM is affiliated to Rajiv Gandhi University of Health Sciences, Karnataka for academic purposes. Presently, it offers postgraduate courses in the following disciplines of Unani System of Medicine:

- Medicine (*Mu‘alajāt*)
- Pharmacology (*‘Ilm al-Adwiya*)
- Preventive and Social Medicine (*Tahaffuzī o Samājī Tibb*)
- Gynaecology and Obstetrics (*Amrād-i Niswān o Qibālat*)
- Unani Pharmacy (*‘Ilm al-Šaydala*)
- Basic Principles of Unani System of Medicine (*Kulliyat-i Umūr Tabī‘iyya*)

The institute has also started Ph.D. in Medicine (*Mu‘alajāt*) and has plan to start Ph.D. in Pharmacology (*‘Ilm al-Adwiya*) from the academic session 2016-17.

The institute has been involved by the Central Council of Indian Medicine in designing the syllabi and curricula of postgraduate and undergraduate courses for Unani System of Medicine.

The institute is attracting students from all parts of the country and abroad. The institute regularly organizes various academic events like Continuing Medical Education (CME) programmes, workshops, symposia and extension lectures for capacity building of teachers, researchers, medical officers and practitioners. Faculty members are deputed to various training programmes to update their technical and professional skills. The institute also collaborates with premier scientific institutions like the CCRUM; National Institute of Mental Health and Neurosciences (NIMHANS), Bengaluru; Al-Ameen College of Pharmacy, Bengaluru; and Jamia Hamdard, New Delhi to enhance teaching and research standards.

The quality of research is maintained by the Monitoring Committee, Institutional Ethics Committee for Biomedical Research, Animal Ethics Committee, Internal Review and Research Committee, Drug Formulation Committee and Committee for Quality Improvement of Clinical Practices. Upto March 2015, 185 dissertations on preclinical, clinical and epidemiological studies have been authored, and 85 papers published in peer reviewed and indexed national and international journals. The institute publishes a quarterly Newsletter and a bi-annual Journal of Research in Unani Medicine. Preclinical experimental studies for assessment of efficacy and toxicity of drugs are carried out in the institute to promote evidence-based research and clinical practice in Unani Medicine.

Research studies have brought out the efficacy of Unani drugs in the treatment of diabetic neuropathy, insomnia, hypertension, hemiplegia, psoriasis, post-menopausal



syndrome, anaemia during pregnancy, cervical erosion and uterine polyps. Preclinical researches have established nephroprotective, hepatoprotective, antiulcer, antidiarrhoeal, anti-inflammatory, lithotriptic and antidepressant activities of Unani drugs. Besides, Department of Preventive and Social Medicine conducts surveys to find out prevalence of various diseases around the catchment areas of the institute.

The well-equipped pharmacy unit of the institute is engaged in processing and preparing Unani formulations in different dosage forms to cater to the hospital needs. Presently, about 72 compound formulations are prepared in this unit. Central Instrumentation Facility Laboratory (CIFL) and Quality Control Laboratory in the institute have all the necessary infrastructure and equipment required to undertake research with regard to identification, standardization and quality control of Unani drugs.

The hospital has an OPD wing and a 180-bed IPD with separate wards for male and female patients. Clinical services are provided to the patients from general and speciality OPDs for skin diseases, gastro-intestinal tract disorders, hepatobiliary disorders, neurological and psychiatric disorders, and sexual disorders. The Regimenal Therapy ('Ilāj bi'l-Tadbīr) Centre of the hospital has facilities for massage, cupping, *Hammām* and leeching. Neurology and Rehabilitation Unit caters to the needs of patients suffering from neurological disorders e.g. stroke, myopathies, epilepsy, motor-neuron disease, parkinsonism, hemiplegia, paraplegia etc. Though the hospital provides purely Unani treatment, it is also well equipped with diagnostic laboratories of pathology, biochemistry, radiology, and ultrasonography.

The NIUM provides healthcare facilities to socio-economically weaker groups at their doorsteps by regularly organizing health camps. In view of the potential of Unani Medicine for rejuvenative healthcare and promoting medical tourism, the institute has set up Health Huts with indoor facilities for domestic and international tourists.

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Over the years NIUM has been developed as the leading educational institution in the world for Unani System of Medicine with scholarly faculty, high quality infrastructure, modern methodology of teaching, scientific research, etc.

7.4 IMPORTANT LIBRARIES

Unani System of Medicine has great legacy of textual and theoretical treasure in the form of manuscripts. In fact, India has one of the largest collections of Unani medical manuscripts in the world, which are preserved in different oriental manuscript libraries. The only copy of *Kitāb al-Hashā'ish* by Dioscorides (40-90 AD) available in India is preserved in Khuda Bakhsh Oriental Public Library, Patna. Some of the important



libraries having good treasure of Unani literature are Salar Jung Museum Library, Hyderabad; Khuda Bakhsh Oriental Public Library, Patna; Rampur Raza Library, Rampur; Dairatul Ma'arif Osmania, Hyderabad; Hakim Mohammed Said Central Library, Jamia Hamdard, New Delhi; The Asiatic Society Library, Kolkata; Maulana Azad Library, AMU, Aligarh; Ibn Sina Academy of Medieval Medicine and Sciences, Aligarh; Andhra Pradesh Government Oriental Manuscripts Library and Research Institute, Hyderabad; A & U Tibbia College Library, New Delhi; Nadwatul Ulama Library, Lucknow; and Dr. Ahmed Ashraf Library for Medical and Contemporary Sciences, Hyderabad.

7.5 CENTRAL COUNCIL OF INDIAN MEDICINE

The Central Council of Indian Medicine (CCIM) is a statutory body constituted under the Indian Medicine Central Council Act, 1970 vide Gazette Notification (Extraordinary) Part (ii), Section 3(ii) in 1971. Since its establishment, the CCIM has been framing and implementing various regulations including the curricula and syllabi in Indian Systems of Medicine viz. Ayurveda, Siddha and Unani Tibb at both undergraduate and postgraduate levels in the country. Now all the colleges of Indian Systems of Medicine including Unani are affiliated to various universities in the country. These colleges follow the minimum standards of education and curricula and syllabi prescribed by the CCIM.

The main objectives of CCIM are as follows:

- To prescribe minimum standards of education in Indian Systems of Medicine viz. Ayurveda, Siddha, Unani Tibb
- To advise Central Government in matters relating to recognition (inclusion/withdrawal) of medical qualification in/from second schedule to Indian Medicine Central Council Act, 1970
- To maintain a Central Register on Indian Medicine
- To prescribe Standards of Professional Conduct, Etiquette and Code of Ethics to be observed by the practitioners

With the prior permission of the Central Government as required under the Indian Medicine Central Council Act 1970, the Central Council of Indian Medicine has laid down specific regulations for education in Unani Medicine for undergraduate and postgraduate courses of study. The CCIM inspectors visit the teaching institutions for assessment of infrastructural facilities and teaching & training facilities and accordingly recommend to the Central Government for grant of permission or to withdraw recognition of teaching institutions. A rigorous procedure is adopted to process the proposals and grant permission after satisfactory fulfillment of prescribed norms.



7.6 CENTRES OF EXCELLENCE

Given the growing consumer acceptance of AYUSH in the domestic and global society as an important component of pluralistic systems of healthcare, the Government of India decided to identify reputed AYUSH knowledge institutions in Non-Governmental/Private Sector and to support them to upgrade their functions and facilities to levels of excellence. Under Central Sector Scheme – Centre of Excellence – the erstwhile Department of AYUSH provided financial assistance to upgrade following institutions to Centres of Excellence in Unani System.

1. Ibn Sina Academy of Medieval Medicine & Sciences - Museum of Medico-Historical Research - Aligarh (Uttar Pradesh)
2. Centre for Unani Ilaj Bit Tadbeer (Regimenal Therapy), Chennai (Tamil Nadu)
3. Dr. Ahmed Ashraf Memorial Unani Speciality Treatment Centre for Paralysis (Falij), Hyderabad (Andhra Pradesh)
4. Shamim Ahmed Saeedi Unani Speciality Hospital for Waja-ul-Mafasil (Joints Pain), Deoband (Uttar Pradesh)

7.7 CLINICAL PRACTICE

Under the Indian Medicine Central Council Act 1970, the CCIM prescribes core elements of medical practice including recognized qualifications, registration of practitioners and professional etiquette & code of conduct and ethics. The State Governments can accord specific privileges to the registered practitioners by making enabling provisions in the state law pertaining to medical practice. Central and State registers of Unani practitioners are maintained by the Central and State Councils, respectively. A Unani practitioner has to get himself registered for practice after getting recognized qualification of Unani System of Medicine.

A total of 48,213 Unani practitioners are registered under the Central and State boards in the country. Presently, 25 States/Union Territories have Unani hospitals and dispensaries. The total dispensaries and hospitals functioning in these States/UTs are 1,491 and 265, respectively with the total bed-strength of 3,623.

The potential of Unani System of Medicine in healthcare delivery is immense and is in process of being fully utilized by both Government and Private Sectors, primarily due to its availability, accessibility, affordability and provision of safe and efficacious treatment.

National Policy on Indian Systems of Medicine and Homoeopathy 2002 stipulates the integration and mainstreaming of Unani and other AYUSH systems in the healthcare delivery system and National Health Programmes. In this direction, the operational strategy adopted by the Government of India is to facilitate co-location of AYUSH



services under one roof in the health delivery network to provide the option to the people to avail the treatment of their choice. The policy ensures provision of AYUSH healthcare facility including Unani system in primary health network. Under this scheme, Ministry of AYUSH provides financial assistance for renovation of building, procurement of furniture, equipments as well as recurring expenditure for purchase of medicines, diet, contingency, etc. The Department of Health & Family Welfare provides financial assistance to the States for contractual deployment of AYUSH doctors including Unani physicians at the co-located facilities. As much as 11,547 AYUSH doctors and 6,467 AYUSH paramedics including those from Unani System of Medicine have been appointed on contract at Primary and Community Health Centres with the assistance from NRHM Flexipool. Various integration linked activities including capacity building of AYUSH practitioners in Reproductive and Child Health (RCH), Integrated Management of Neonatal and Childhood Illness (IMNCI), Skilled Birth Attendant (SBA) Training and School Health Programme to bring in comprehensive healthcare facilities are also undertaken under National Rural Health Mission (NRHM), which is being up-scaled as National Health Mission.

To further accelerate the growth of AYUSH and enhance its infrastructure and services, the Government of India launched the National AYUSH Mission (NAM) as a Centrally Sponsored Scheme in September 2014. AYUSH services; educational institutions; quality control of drugs; and medicinal plants form the four mandatory components of the Mission, whereas establishment of AYUSH wellness centres; introduction of Tele-medicine and sports medicine through AYUSH; innovation in AYUSH including Public Private Partnership; and provision of crop insurance for medicinal plants are some of the flexible components that have provision to get 20% funds out of the total State envelop available. The NAM aims at providing cost-effective AYUSH services and ensuring universal access through establishing, improving and upgrading the infrastructure and resources of the entire value chain of AYUSH systems.

The Government of India has adopted the policy of Universal Health Coverage (UHC) for ensuring equitable access for all Indian citizens, residing in any part of the country, regardless of socio-economic status, gender, caste and religion to affordable, accountable, appropriate health services (promotive, preventive, curative and rehabilitative) of assured quality. India is consolidating its efforts through functionally integrating Unani Medicine for Universal Health Coverage as Unani Medical System co-exists with the modern and other AYUSH systems of medicine to form a unique model of medical pluralism.



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GLOSSARY

Sl.No.	Term	Description/Equivalent
1.	<i>Ābzān</i>	Sitz bath
2.	<i>A'ḍā'</i>	Organs
3.	<i>Adwiya Ḥaywāniyya</i>	Drugs of animal origin
4.	<i>Adwiya Ma'daniyya</i>	Drugs of mineral origin
5.	<i>Adwiya Nabātiyya</i>	Drugs of plant origin
6.	<i>Afāl</i>	Functions
7.	<i>Akhlāt</i>	Plural of <i>Khilt</i> ; meaning humours responsible for biological processes
8.	<i>'Alāmāt</i>	Signs and symptoms
9.	<i>'Arād</i>	Secondary abnormality
10.	<i>Ard</i>	Earth
11.	<i>Arkān</i>	States of matter and the materials entering into and forming a part of everything in the universe
12.	<i>'Arq</i>	Distillate
13.	<i>Asbāb Bādiya</i>	External causes
14.	<i>Asbāb Bāṭīna</i>	Internal causes
15.	<i>Asbāb Sitta Darūriyya</i>	Six Essential Factors which govern existence as well as health and disease
16.	<i>Bakhūr</i>	Fumigation
17.	<i>Barāz</i>	Stool
18.	<i>Bawl</i>	Urine
19.	<i>Dalk</i>	Massage
20.	<i>Dawā'</i>	Drug
21.	<i>Dawā' Ghidhā'i</i>	Drug having nutritional value
22.	<i>Dimād</i>	Medicated paste for external application



GLOSSARY

Sl.No.	Term	Description/Equivalent
23.	<i>Faṣd</i>	Blood letting through venesection, used for elimination of morbid humours
24.	<i>Firzaja</i>	Pessary
25.	<i>Ghidhā'</i>	Food
26.	<i>Ghidhā' Dawā'</i>	Food having medicinal value
27.	<i>Habb</i>	Pill
28.	<i>Hammām</i>	Turkish Bath
29.	<i>Harakat o Sukūn Badanī</i>	Bodily movement and repose
30.	<i>Harakat o Sukūn Nafsānī</i>	Psychic movement and repose
31.	<i>Hawā'</i>	Air
32.	<i>Hijāmat</i>	A special type of Regimenal Therapy in which local evacuation of humours from the diseased site with the help of a cup
33.	<i>Huqna</i>	Enema
34.	<i>Idrār-i Bawl</i>	Diuresis
35.	<i>'Ilāj</i>	Treatment
36.	<i>'Ilāj bi'l-Dawā'</i>	Pharmacotherapy
37.	<i>'Ilāj bi'l-Ghidhā'</i>	Dietotherapy; Treatment with food materials
38.	<i>'Ilāj bi'l-Tadbīr</i>	Regimenal Therapy based on specific regimens to maintain health and manage diseases
39.	<i>'Ilāj bi'l-Yad</i>	Surgery
40.	<i>'Ilāj Nafsānī</i>	Psychiatric treatment
41.	<i>Īlām</i>	Counter irritation
42.	<i>'Ilm al-Adwiya</i>	Pharmacology
43.	<i>Imāla</i>	Diversion of morbid material
44.	<i>Inkibāb</i>	A mode of treatment in which targeted part of the body is exposed to vapours of decoction of drugs
45.	<i>Ishāl</i>	Purging
46.	<i>Istifrāgh o Iḥtibās</i>	Evacuation and retention



Sl.No.	Term	Description/Equivalent
47.	<i>Jawārish</i>	A semisolid preparation made by mixing coarse powder of drugs to a base of honey, sugar or jaggery for oral use.
48.	<i>Joshānda</i>	Decoction
49.	<i>Kathīf</i>	Thick
50.	<i>Kayy</i>	Cauterization
51.	<i>Khamīra</i>	A type of <i>Ma'jūn</i> prepared by mixing decoction of drugs along with powder in a base of honey, sugar or jaggery. The mixture is continuously stirred while still hot, till it becomes thick and white.
52.	<i>Khīsānda</i>	Infusion
53.	<i>Latīf</i>	Thin / subtle
54.	<i>Mā'</i>	Water
55.	<i>Ma'jūn</i>	A semisolid preparation made by mixing powdered drugs in a base of honey, sugar or jaggery.
56.	<i>Ma'kūl o Mashrūb</i>	Food and drinks
57.	<i>Marad</i>	Disease
58.	<i>Mawālīd Thalātha</i>	Primary sources of drug in Unani System of Medicine i.e. plants, animals and minerals
59.	<i>Mizāj</i>	Temperament; A quality that is produced by action and reaction of opposite qualities of elements which are broken up in small articles in order to facilitate their mixing. When these components interact among themselves, a condition is produced, which is found in equal proportion in all the particles of the compound. This new formation is known as <i>Mizāj</i> .
60.	<i>Mu'ālajāt</i>	The study of practice based on the Unani System of Medicine principles and philosophy.
61.	<i>Mudirr-i Bawl</i>	Diuretic
62.	<i>Mundij</i>	Concoptive
63.	<i>Mushil</i>	Purgative



GLOSSARY

Sl.No.	Term	Description/Equivalent
64.	<i>Muṣliḥ</i>	Corrective drug used along with the original one to overcome its unwanted effects
65.	<i>Nabd</i>	Pulse
66.	<i>Nafs Nāṭiqā</i>	Spirit
67.	<i>Nār</i>	Fire
68.	<i>Natūl</i>	A mode of treatment in which lukewarm decoction of drugs/water is poured on affected part from a distance.
69.	<i>Nawm o Yaqza</i>	Sleep and wakefulness
70.	<i>Qatūr</i>	Drops (Eye/ear etc.)
71.	<i>Qay'</i>	Emesis
72.	<i>Qurş</i>	Tablet
73.	<i>Quwā</i>	The plural of <i>Quwwat</i> ; The bodily powers or faculties
74.	<i>Riyādat</i>	Physical Exercise
75.	<i>Roghan</i>	Oil
76.	<i>Rūh</i>	The vital force or life force
77.	<i>Sabab</i>	Cause
78.	<i>Safūf</i>	Powder of drug
79.	<i>Şihhat</i>	Health
80.	<i>Sharbat</i>	Syrup
81.	<i>Shiyāf</i>	Suppository
82.	<i>Sū'-i Tarkīb</i>	Structural deformity
83.	<i>Tabī'at Mudabbira'-i Badan</i>	Medicatrix Naturae; A power endowed by nature to every individual for self preservation which regulates its normal functions. It is the administrator, protector and healer of the body.
84.	<i>Tadbīr-i Adwiya</i>	Processing of Drugs
85.	<i>Ta'dil-i Mizāj</i>	Normalization of the morbid temperament
86.	<i>Tafarruq-i İttisāl</i>	The breach in the continuity of tissue



Sl.No.	Term	Description/Equivalent
87.	<i>Takmīd</i>	Fomentation (Hot/Cold)
88.	<i>Ta'līq</i>	Leeching
89.	<i>Tanfīth</i>	Expectoration
90.	<i>Tanqīya</i>	Evacuation of morbid material through different excretory channels
91.	<i>Ta'rīq</i>	Diaphoresis
92.	<i>Tashkhiṣ</i>	Diagnosis
93.	<i>Tilā'</i>	Liniment
94.	<i>Umūr Ṭabī'iyya</i>	The essential factors in association with the structure and functions of the body i.e. <i>Arkān</i> , <i>Mizāj</i> , <i>Akhlāṭ</i> , <i>Aḍā'</i> , <i>Arwāḥ</i> , <i>Quwā</i> and <i>Afāl</i> . Each of them is essential to sustain the body.



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