

COMSATS International Thematic Research Group on Natural Products

Focal Center

International Center for Chemical and Biological
Sciences, University of Karachi, Pakistan

Objectives

- To Add Value to Natural Wealth of the Developing World by Working together on Focused Projects
- To Develop Human Resources Capable of Helping Natural Product Based Industries and Bioprospecting
- To Develop Cost Effective Medicines and Preventive Agents by Using Natural Products and Associated Indigenous Knowledge

Member Institutions

- Seven Member Institutions in Pakistan, Iran, Sudan, Sri Lanka, Egypt, Turkey, and Tanzania
- All Member Institutions have Strong Capacity in Natural Product Sciences
- Available Human Resources
- Rich Flora
- Rich Indigenous Knowledge Base



What is Required to Develop a Modern Drug (NME)?

- **Decision**= Corporate decision to invest in specific therapeutic areas, based on “*economic feasibility*”
- **Cost**= \$ 1.4 billion- 1.8 billion
- **Duration**= 10-12 years R&D, and regulatory approval
- **People**= 600- 800 scientists of multi-disciplinary expertise
- **Chemical Diversity**: Screening of 50,000- 200,000 compounds
- **Global Approval**= Lots of paper work, often based on ill-planned studies

Productivity Crises

Global decline in R&D productivity in last three decades, mainly due to the use of:

- **Non-validated and expensive technologies (combinatorial chemistry, high throughput screening, etc),**
- **Increasingly stringent approval criteria, and**
- **Deteriorating perception of consumers against synthetic drugs**



How it Affects Us?

- No role in global drug discovery and development
- Our diseases remain untreated
- Our indigenous knowledge remains unused, and threatened to be lost
- Can lead to *drug insecurity* crises

Can We Do Things Little Differently?



- Let the folk wisdom and collective human experiences guide us
- Document local knowledge of therapeutic uses of plants
- Use WHO guidelines to assure safety by toxicological and cytotoxicological studies
- Pre-clinical trials on disease model/knock-out animal models, as per WHO protocols
- Clinical studies as per WHO protocols
- Fast track low cost regulatory approval

And to appreciate that if it is safe and effective, it is a drug (whether pure compounds or a complex extract).



Going to the Nature's Way!

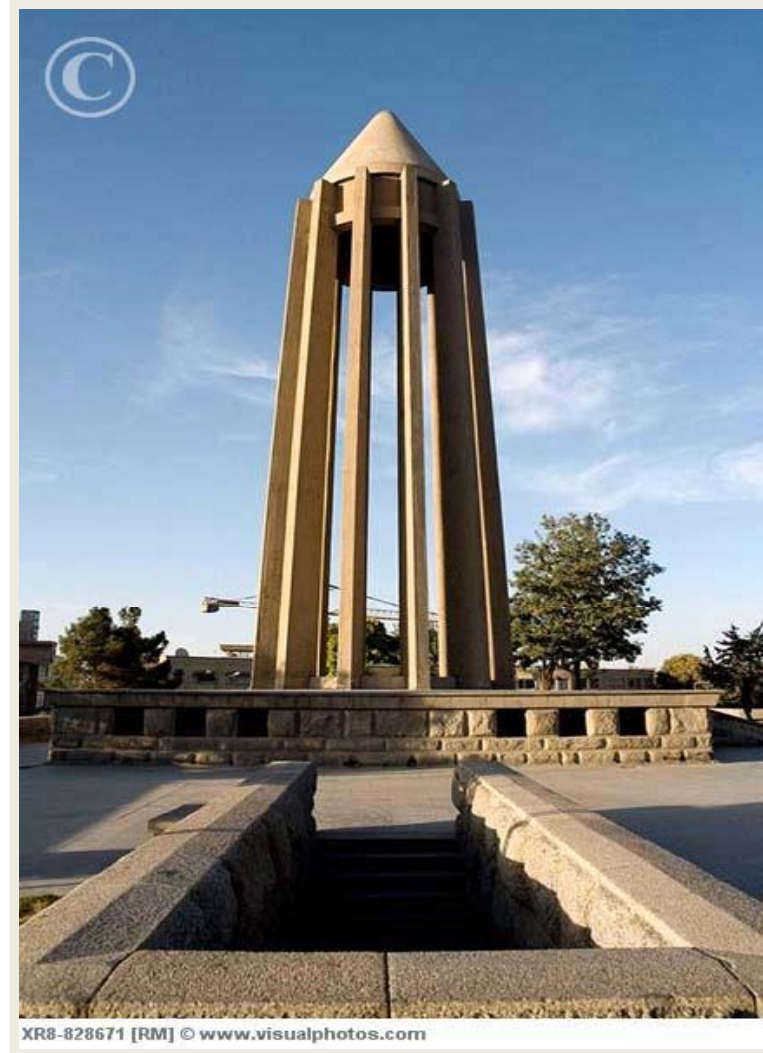
Over 400,000 flowering plants, less than 2% have been exhaustively studied for their potential pharmacological activities and bioactive chemicals.

- 90 plant - based medicines in clinical practice
- 25% of all modern medicines are from natural sources
- Every medicinal plant contains thousands of chemicals, capable of locking particular disease mechanisms
- Untapped folk knowledge

AGE OLD TRADITIONS OF NATURAL MEDICINES



Ibn-e-Sina (Avicenna)
980-1037



Avicenna Tomb

Natural Products in Health and Economy

- According to WHO, 80% of the World Population Rely on Natural Products for Disease Prevention and Health Promotion
- 20% Increase in Natural Products Based Medicines, Nutraceuticals and other Botanicals
- Global Sale of Botanicals Exceeds US \$200 Billion Annually

Activities

- Foundation meeting was held in Karachi on November 26, 2010
- Visit of two young scholars from Sri Lanka to Pakistan
- COMSTAS-COMSTECH Workshop on Modern Techniques in Combinatorial Chemistry of Natural Products, in Islamabad during June 13-16, 2011. Participants from nine COMSATS countries have participated
- Mega Project involving all centers is in process

Future Activities

Global Thematic Group Moot, 2012

- With the courtesy of the Premier Organization of the Islamic Republic of Iran, the IROST, will be held in Tehran (Iran) in October 2012
- The mega projects will be finalized, along with focussed workshops on various aspects of natural product-based product development
- Capacity Building will be the main focus of the international event

Scientific Secretariat

Dr. E. Esin Kocabas
esinkocabas@gmail.com

Dr. Farzana Shaheen
afnan.iccs@gmail.com

Dr. Atia-tul-Wahab
tulwahab@yahoo.com



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Organization Secretariat

Dahlia Tour Congress & Organization

Onur Türkay
onur@dalyatur.com
Phone: +90 232 464 88 30
Fax: +90 232 464 88 31



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WORKSHOP ON PLANT PRODUCTS CHEMISTRY & INTERNATIONAL SYMPOSIUM ON MEDICINAL-AROMATIC PLANTS



KAYA IZMIR THERMAL & CONVENTION
BALÇOVA, IZMIR, TURKEY

5-7 JUNE, 2013

www.ppcw2013.com

Hosts

Ege University, Department of Bioengineering,
Izmir, Turkey
Intern. Center for Chemical & Biological Sciences,
Univ. of Karachi, Pakistan.
COMSATS-Islamabad, Pakistan

Introduction

Relationship between humans and plants have existed since the Paleolithic age. A number of plant remedies have been described on the clay tablets that have survived from the civilizations in the "FERTILE CRESCENT" part of Turkey. Nature has bestowed upon plants active molecules with natural affinities with the human body. People, nowadays, are using the powerful curative properties of plant world to stimulate the functioning of the organism and improve their physical as well as mental well-being.

Nature cures and herbal medicinal products are indispensable. There is now more acceptance for the phytotherapy, and demand of plant-based medicines for age-related disease (autoimmune, degenerative diseases), preventive medicines (antioxidants, edible vaccines, nutritional therapy, etc.), and plant-based anti-infectious agents are becoming more important. Medicinal plants will continue to play this role as long as modern medicine continues to be unable to meet the health care needs of people of the developed world.

Main objective of this workshop and symposium is to bring together a galaxy of most eminent scientists and present to the world the frontiers of natural product chemistry-allied sciences, as well as invite young and experienced scientists from different countries theirby search for the possibilities of engaging them in meaningful collaborations. We want to include some Nobel Laureates too. The event is expected to earn a world-wide reputation of excellence in the discipline of medicinal-aromatic plants and plant products.

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Topics

- Phytotherapy
- Pharmacognosy and Phytochemistry
- Medicinal-Aromatic Plants (MAP) and Food Industries
- Environment & MAP Systems, Sustainable Use
- Horticulture of Medicinal Plants Production and manufacturing systems
- Basic Research
- Good Practices of Traditional Healing
- Marketing Systems - Opportunities and Challenges

Guest of Honour

Prof. Dr. ATTA-UR-RAHMAN
(FRS, UNESCO Science Laureate,
Patron in Chief, ICCBS)
Coordinator General OIC Standing Committee on
Scientific & Technological Cooperation (COMSTECH)

Organisors

Prof. Dr. Fazilet Vardar Sukan
(Dept. of Bioengineering, Ege University, Izmir, Turkey)

Prof. Dr. Munir Ozturk
(Rtd. Prof. of Botany, Ege University, Izmir, Turkey)

Prof. Dr. M. Iqbal Choudhary (H. I., S. I., T. I.)
(Director ICCBS, University of Karachi, Pakistan)

Prof. Dr. Erdal Bedir
(Dept. of Bioengineering, Ege University, Izmir, Turkey)

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Thank You Very Much