

BIODATA

DR. SABIRA BEGUM

NAME DR. SABIRA BEGUM
FATHER'S NAME MUNSIF ALI
DESIGNATION Associate Professor
INSTITUTION International Center for Chemical Sciences, H.E.J. Research Institute of Chemistry, University of Karachi, Karachi, Pakistan
E-MAIL sabira@khi.comsats.net.pk
FAX 92-21-4819018-9
TELEPHONE 92-21-4824924-5

ACADEMIC QUALIFICATION

Ph.D. (Organic Chemistry) Karachi University 1985
Title of Ph.D. Thesis: "Studies in the harmine series of alkaloids and pharmacologically significant derivatives of yohimbine"
Supervisor. Prof. Dr. Salimuzzaman Siddiqui, FRS

APPOINTMENTS AND EXPERIENCE

<u>Post</u>	<u>Institution</u>	<u>Year</u>	<u>Nature of Duties</u>
Junior Research Fellow	H.E.J. Res. Inst. of Chemistry, University of Karachi	1977-82	Research for Ph.D.
Research Fellow	"	1983-88	Research for Ph.D./ Post doctoral research
Senior Research Fellow	"	1988-89	Research
Assistant Professor	"	1990-99	Research/Supervision of M.Phil/Ph.D. students/Teaching
Associate Professor	"	16 th Jan. 2000 to date	Research/Supervision of M.Phil/Ph.D. students/Teaching

PUBLICATIONS 171 Research publications

PATENTS Three patents granted by the Government of Pakistan.

PARTICIPATION IN INTERNATIONAL CONFERENCES

Participated in more than 22 International Conferences.

MEMBERSHIP

- * Elected Full Member of the Third World Organization for Women in Science, Treste, Italy.
- * Member Scientific Society of Pakistan.
- * Member Chemical Society of Pakistan.

INCLUSION IN INTERNATIONAL DIRECTORIES.

- * International Directory of specialists in herbs, spices and medicinal plants, University of Massachusetts at Amherst, U.S.A.

NATIONAL/ INTERNATIONAL AWARD

- * Awarded Star Woman of the year Award, 1998.
- * Awarded President's Award for Pride of Performance on 23rd, March, 2002.
- * Awarded Pakistan Academy of Sciences Gold Medal, 2005.

RESEARCH SUPERVISION

Supervised Twelve Ph.D theses [Supervisor in 2 and Co-Supervisor in 10].

Supervised four M.Phil theses [Supervisor in 3 and Co-Supervisor in 1].

Supervised twenty M.Sc theses.

RESEARCH CONTRIBUTIONS

Dr. Sabira Begum has published over 171 research papers most of which are in leading international journals of isolation and synthesis of natural products.

The main direction of her current research is the **activity-directed isolation and structure elucidation of new natural products from medicinally important plants** some of which are *Nerium oleander*, *Thevetia neriifolia*, *Mirabilis jalapa*, *Plumeria obtusa*, *Holarrhena pubescens* (*H. antidysenterica*), *Psidium guajava*, *Lantana camara*, *Carissa carandas*, *Brassica campestris*, *Eucalyptus camaldulensis* var. *obtusa*, etc. These studies have resulted in the isolation of a number of new pentacyclic triterpenoids, diterpenoids, iridoids, cardiac glycosides, steroids, steroidal alkaloids, flavonoids, fatty acids, hydrocarbons, aromatics, etc. possessing potential biological significance.

For instance, bioassay directed isolation studies on *Nerium oleander* have led to the isolation of **two new cytotoxic pentacyclic triterpenoids** namely *cis*-karenin and *trans*-karenin along with several factors possessing significant cytotoxicity. Another bioassay-guided isolation work on this plant has resulted in the isolation of **three pure CNS-depressant cardenolides and several CNS depressant factors**. Two new steroidal alkaloids namely **holamide** and **pubescinine** isolated from *Holarrhena pubescens* (*H. antidysenterica*) possess **significant antihypertensive activity**. **Several pure compounds** and factors showing significant **antihypertensive activity** have also been isolated from a **local vegetable**. Furthermore, a **pure pentacyclic triterpenoid** along with **several fractions**, obtained from bioassay-guided isolation from *Thevetia neriifolia*, were found to possess **antihypertensive activity**. More recently, a bioassay guided isolation work on two local plants has led to the isolation of **several spasmolytic compounds**. **Some of them have also been synthesized**. **Two patents have been granted by the Govt. of Pakistan on nematocidal and cytotoxic compositions**. These would be beneficial for agriculture and in cancer therapy.

The other topic of her research is **structure activity relationship studies on natural products** (harmine series of alkaloids, reserpine, yohimbine, ursolic acid and oleanolic acid derivatives, etc.) and simple aromatic compounds

(catechol/pyrocatechol and 2-isopropyl phenol). Studies in these directions have led to the synthesis of a series of β -carbolines, tryptamines, anhydronium bases, pentacyclic triterpenoid analogues as well as various phenolic compounds. Preliminary pharmacological screening indicated that some of these compounds possess significant cytotoxic, antibacterial, CNS depressant, CNS stimulant, analgesic, antiasthmatic, antiplatelet aggregation, spasmolytic and antihypertensive activity. **Two of these showing antituberculosis activity have been selected for secondary screening by an American Research Institute. Furthermore, one-pot synthesis for γ -lactones has been achieved.**

Structures of the new compounds have been elucidated through chemical transformations and modern spectroscopic methods including 1D, 2D-NMR spectroscopy (COSY- 45°, NOESY, 2D J-resolved, TOCSY, heteroCOSY, HMQC, HMBC etc.).

In recognition of her contributions, she was elected as a **full member Third World Organization for Women in Science**. Her name has been included in the **International Directory of specialists** in herbs, spices and medicinal plants, University of Massachusetts at Amherst, U.S.A. She awarded **Star Woman of the year Award** for 1998, **President's Award for Pride of Performance** (23rd, March, 2002) and Pakistan Academy of Sciences Gold Medal 2005.

She is among **the first ten leading scientists of Pakistan in the field of chemistry** according to the publication "Leading Scientists of Pakistan" 1999 published by Pakistan Council for Science and Technology. Her impact factor is 147.110 and 350 scientists cited her papers in their publications.