

CURRICULUM VITAE

PD. Dr. Muhammad Raza Shah

Assistant Professor

International Center for Chemical and Biological Sciences,
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Father's Name: Khan Alam
Date of Birth: Feb. 18, 1976
Martial Status: Married
Qualification: Ph.D. in Chemistry

Distinctions and awards

- Prof. Atta-ur-Rahman Gold Medal in Chemistry for the year 2006 by Pakistan Academy of Sciences.
- Salam prize in chemistry 2006 for young scientist of developing country by ICTP Italy.
- 42nd IUPAC Young Chemist Award 2009 by IUPAC

List of Positions held.

Year	Positions	Responsibilities
2004-to present	Assistant Professor	Leading a research group of Supramolecular chemistry. Involved in teaching to Ph.D. students. Incharge of supramolecular and chemistry laboratories Pakistan
2006-2007	Postdoctoral Fellow	Characterization of tBLM by AFM, STM, SPR and other surface related techniques Germany
2003-2004	A3 Assistant	Postdoctoral researcher working on the synthesis and characterization of some bio-organic compounds at Geneva University Switzerland.
2001-2003	Research Fellow	Ph.D. research fellow at Max-Planck Research Institute for Polymer Mainz Germany.
2000-2001	Junior Research Fellow	International Center for Chemical Sciences, HEJ Research Institute of Chemistry University of Karachi.

Scholarships awarded and Funded visits:

- Postdoctoral Fellowship from Max-Planck Research Institute for Polymer 2006-2007
- Scholarship Awarded by Swiss National Science Foundations as Postdoctoral Researcher for the Year 2003 to 2004 at Geneva University Switzerland.
- BAT-1/2 Fellowship Awarded by Max-Planck Chemical Society.2002-2003
- Max-Planck International Research School for Material Science Fellowship 2001-2002
- Junior Research Fellowship Awarded by International Center for Chemical Sciences, H.E.J. Research Institute of Chemistry, University of Karachi, Pakistan.2000-2001

- Scholarship Awarded by the Political Agent (On behalf of Governor N.W.F.P) Mohmand Agency from 1994 up to 1999 on account of best Academic Performance.
- Higher Education Commission Scholar and Visiting Professor Gomal University DI Khan May 2005 to June 2005
- Higher Education Commission Scholar and Visiting Professor to Department of Chemistry Peshawar University in October 26-2nd November 2006.
- A funded visit to China for participation and delivering a lecture in second Sino-Pakistan Bilateral Workshop on Chemical Sciences, April 17-20, 2006 Shanghai, China by Chinese Academy of Sciences and Ministry of Science and Technology of Pakistan.
- Whole trip is financed by Max-Planck Research Institute of Polymer to present our work in the AFM BioMed Conference Barcelona Spain 19-21 April 2007.
- A funded visit to Bangladesh Dhaka sponsored by International Foundation for Science to attend a training workshop entitled “International workshop on scientific methodology, development of grant applications for International Foundation for Science, development of scientific manuscript for publications” held on October 20-27th 2007.
- A funded visit to LUMS Lahore sponsored by organizing committee of the workshop to deliver a lecture on the role of Nanomaterial on Drug Delivery and Cancer Treatment held on July 28-29th 2008.

Research Grants Won:

- Supramolecular Multifunctional Barrel-Stave Pores. Sponsored by Higher Education Commission of Pakistan reference number is 20-351/R &D/2nd Phase/05/322 Worth 3 million rupees.
- A Research Grant of Three Million Rupees Awarded by A Research grant of 2 million Rupees Awarded by Higher Education Commission of Pakistan reference number is 20-616/R&D/06/679
- Supramolecular Nanotubes and Ring Polymers, Molecules for the Future. Sponsored by Organization for the Prohibition of Chemical Weapons (OPCW) December 2005 to December 2008. Project Number L/ICA/ICB/104543/05 worth of 21424\$
- Design, Synthesis and Characterization of *p*-Octiphenyloctacalix[4]arene a Supramolecular multifunctional pore having practical applications in medicine and mechanics Sponsored by COMSTECH-ISESCO worth of 10,000 USD approved on June 2006 to June 2008. Project NO 3(60)/06-COMSTECH
- Bioassay guided investigation of the chemical and biological constituents of the drinking water resources of Karachi city Sponsored by IFS (International Foundation for Science) worth of 8600 USD approved on April 2008 to April 2009. Project No AW/17980,
- Project Member of NGS Grant #8034-06 by “The National Geographic Society Washington DC USA.
- Design, Synthesis and Characterization of *p*- octiphenyloctacalix[4]arene a supramolecular multifunctional pore having practical applications in medicine and mechanics sponsored by Pakistan Science Foundation reference number PSF/Res/S-HEJ/Chem(403) worth 1.15 million rupees.

Conference Symposium Organized:

- Organizing Secretary of International Symposium on Nanochemistry 8th -9th January 2006.
- Secretary 5th National Chemistry Talent Contest Program 1st Camp held on October 10-16, 2008 at ICCBS-H.E.J. Institute of Chemistry University of Karachi.
- Secretary 5th National Chemistry Talent Contest Program 2nd Camp held on Feb 15-26, 2009 at ICCBS-H.E.J. Institute of Chemistry University of Karachi.
- Secretary 5th National Chemistry Talent Contest Program 3rd Camp held on June 20-July 10, 2009 at ICCBS-H.E.J. Institute of Chemistry University of Karachi.
- Secretary 6th National Chemistry Talent Contest Program 1st Camp held on 14th August 21 August, 2009 at ICCBS-H.E.J. Institute of Chemistry University of Karachi.

Membership:

- Life Member of Pakistan Chemical Society
- Member of Swiss Chemical Society (2003)
- Member of Max-Planck Research School for Material Sciences (2002)
- National Representative in Polymer Division, International Union of Pure and Applied Chemistry (IUPAC) 2008-2009.

Teaching Experience:

Mainly involved in the teaching of C-C Bond forming reactions and rearrangement course to M.Phil/Ph.D students covering the following topics.

- A) C-C single bond forming reactions (including asymmetric reactions).

- i) Alkylation/acylation of aldehydes, ketones, esters, nitriles, amides, and their derivatives. Problems of C vs O alkylation / acylation.
Kinetic vs thermodynamic products. Reactions of kinetically generated vs thermodynamically generated enolates and other anions.
- ii) Alkylation / acylation of β -dicarbonyl compounds and other active methylene compounds (C vs O alkylation / acylation). Alkylation / acylation of dianions.
- iii) Alkylation / acylation of N, S, P, Se, Si and similarly stabilized carbonions, umpolung of carbonyl and other functionalites.
- iv) Alkylation / acylation of organocoppers, α -allyl systems, and other organometallic intermediates.
- v) Nucleophilic addition of electron-deficient carbon, Aldol type addition (inter- and intramolecular), asymmetric Aldol type reaction, Cram and Felkin models. How to violate Cram's rules, 1,2 addition of boron and zinc enolates. Other 1,2 addition (or addition elimination processes). Grignard-type reactions 1,4 additions, 1,4 addition of organometallic intermediates), alkylation / acylation of primary intermediates generated by 1,4 or other 1, n additions.
Alkylation / acylation of enamines and similar species. Alkylation / acylation of alkyl and alkenyl silanes. Other C-C single bond forming processes not covered above
- b) C-C double bond forming reactions. Elimination reactions, Wittig-type olefinations and their modifications, preparation of trans vs cis double bonds. Stereospecific synthesis of tri- and tetrasubstituted olefins. Preparation of conjugated and non-conjugated polyene systems. Preparation of olefins from acetylenes. Preparation of cyclic olefins, and polyenes. Allene forming reactions. Olefins by retro Diels-Alder and other electrocyclic processes. Preparation of heteroatom substituted olefins. Olefins conjugated to electron rich or electron – deficient groups.
- c) C-C Triple bond forming and related reactions. Preparation of terminal and non-terminal acetylenes ene-yne and heteroatom substituted

acetylenes and their synthetic utility Other C-C multiple bond forming reactions (not included so far).

B) Rearrangement: Covering 100 well known rearrangements.

Research Experience:

Master Research:

Stereoselective synthesis of *S (+)-2-Butanol*, under the supervision of Prof. Dr. Sher Khan Sadozai for M.Sc. thesis in 1999.

Doctoral Research:

➤ Worked on bioassay directed phytochemical investigation of Pakistani medicinal plants as a Ph.D. Research Fellow under the supervision of **Prof. Dr. Abdul Malik (Sitara-i-Imtiaz)** since April 2000 to April 2001 at International Center for Chemical Sciences H. E. J. Research Institute of Chemistry, University of Karachi, Karachi-75270, Pakistan.

➤ Synthesis of highly functionalized [2]catenanes and their constitutional isomers at Max-Planck Research Institute for Polymer Mainz Germany in the research group of **Prof. Wegner** under the supervision of **Prof. Dr. Adelheid Godt** as Ph.D. thesis since May 2001 to Feb 2003.

This Ph.D work resulted in the synthesis of three new catenane molecules and their constitutional isomers in 23 consecutive steps which are high yielding and reproducible involving a variety of reactions like oxidation, reduction, protecting group chemistry, addition, substitution, metal catalyzed coupling reaction, etc.

➤ Oligodisulfide oligo [2]catenane have also been synthesized for studying material properties.

Postdoctoral Research Experience:

➤ **1st Postdoc:** Postdoctoral work was carried out on the synthesis of rigid rod β -barrel since March 2003 to March 2004 in the group of Prof. Stefan Matile. Synthesis of various pentapeptides were pursued and attached to octiphenyl rod to form peptide containing β -barrel. This β -barrel showed some exciting properties,

like catalyzing reactions, and enzyme sensing. Some synthetic work on the synthesis of porphyrin molecules was also carried out during postdoctoral duration.

- **Second Postdoc:** Second postdoc was carried in the group of Prof. Wolfgang Knoll at Max-Planck Research Institute for Polymer Mainz Germany from June 2006 to June 2007 on the characterization of tethered lipid bilayer by atomic force microscopy, scanning tunneling microscopy and surface plasmon resonance spectroscopy.

Presented Talks in conferences/meeting etc.

- Active participation in four summer schools organized by Max-Planck International Research School for Material Science in Germany since 2001-2003
- Presented talks as member of Max-Planck International Research School for Material Science in ETH Zurich, (Switzerland) entitled “Giganto cycles”.
- Delivered a talk at Max-Planck Research Institute for Polymer Mainz Germany entitled “Design, Synthesis and Characterization of asymmetrical [2]catenane 18 December 2001.
- Delivered talk at Organic Chemistry Department University of Geneva entitled “Synthesis and Characterization of [2]catenanes and their Constitutional Isomers”
- Deliver a Talk in a Symposium Organized in the Memory of late Prof. Opellzer at Organic Chemistry Department University of Geneva at the title “Beyond Rigid Rod β -barrels.”
- Delivered a Lecture at Quaid-e-Azam University in 5th International and 15th National Chemistry Conference at 26th November 2004 entitled “Supramolecular Chemistry a Journey of Chemist.
- Delivered a Series of 12 lectures as Higher Education Commission of Pakistan,s Visiting Scholar and Visiting Professor at Gomal University D.I. Khan on various

aspects of ^{13}C -NMR spectroscopy and 2D-NMR spectroscopy 7th May 2005 to 21st of May 2005.

- Delivered an Invited Lecture at Federal Urdu University of Arts and Technology 23rd September 2005 entitled “A Chemist Approach to Supramolecular systems”
- Delivered a talk in the second Sino-Pakistan Bilateral Workshop on Chemical Sciences, April 17-20, 2006 Shanghai, China entitled “Ultra Large Rings”.
- Deliver a talk at Max-Planck Research Institute for Polymer Mainz Germany 06-11-2006 entitled “Chemistry in Pakistan and tBLM seen by AFM”
- Delivered a talk on the role of Supramolecular Chemistry in Drugs at one day seminar held 10th September 2007 in NIBGE Faisalabad.
- Deliver talk at 18th National Chemistry Conference 25th -27th Feb. 2008, held at Institute of Chemistry University of Punjab. Title. Characterization of Protein ion Channels via AFM.
- Delivered a talk on the role of Nanomaterial in Drug Delivery and Cancer Treatment at LUMS Lahore July 28-29 2008 at LUMS Lahore
- Attended 19th National Chemistry Conference held in Baragalli during June 09-11, 2009.

Training Conducted:

- Conducted Practical Laboratory Training of Students under National Talent Contest Program at HEJ Research Institute of Chemistry.

Technical training:

- Operational Expertise in Scanning Tunneling Microscopy.
- Operational expertise in Atomic Force Microscopy both in liquid and air.
- Operational expertise in 1D and 2D NMR spectrometry, the training was obtained at Max-Planck Research Institute for Polymer Mainz Germany.

- Operational skills of HPLC and other sophisticated chromatographic techniques.
 - Operational and technical skills of Glove Box
 - Expertise in Schlenk and vacuum techniques for oxygen sensitive reactions.
1. Got training on how to write an effective project and a manuscript sponsored by International Foundation for Science at Dakha Bangladesh. The title of training workshop was International workshop on scientific methodology, development of grant applications for International Foundation for Science, development of scientific manuscript for publications, held at Bangladesh Center for
 - 2.

PUBLICATIONS (Dr. M. Raza Shah)

Total Impact Factor more than 85 and Total Citations more than 160.

- 1). Alysinal--a new triterpene from *Alysicarpus monolifer*. Riaz, N.; Anis, I.; Khan, P. M.; **Shah, M. R.**; Malik, A. *Natural Product Letters* **2002**; 16(6), 415-418. (0.683)
- 2). Facile access to monodisperse ultra large rings. **Shah, M.R.**; Duda, S.; Godt, A.; Malik, A.; *J. Am. Chem. Soc.*; **2003**; 125(18); 5408-5414. (7.885)
- 3). Thermodynamic and Kinetic Stability of Synthetic Multifunctional Rigid-Rod β -Barrel Pores: Evidence for Supramolecular Catalysis
Litvinchuk, S. ; Bollot, G.; Mareda, J.; Som, A.; Ronan, D.; **Shah, M. R.**; Perrottet, P.; Sakai, N.; Matile, S. *J. Am. Chem. Soc.* **2004**; 126(32); 10067-10075. (7.885)
- 4). Spinoside, New Coumaroyl Flavone Glycoside from *Amaranthus Spinousus* Haq, A-U.; Malik, A.; Khan, S.B.; **Shah, M.R.**; Muhammad, P. *Archives of Pharma. Res.* **2004**; 27, 1216-1219. (1.085)
- 5). Tyrosinase-Inhibitory Long-Chain Esters from *Amberboa ramosa*
Khan, S.B.; Haq, A-U.; Afza, N.; Malik, A.; Khan, M.T.H.; **Shah, M.R.**;
Choudhary, M.I. *Chem. Pharm. Bull.* **2005**; 53(1), 86-89. (1.223)
- 6). Butyrylcholinesterase Inhibitory Guaianolides from *Amberboa ramosa*
Khan, S.B.; Perveen, S.; Afza, N.; Malik, A.; Haq, A-U.; **Shah, M.R.**; Nawaz, S.A.; Choudhary, M.I. *Archives of Pharm. Res.* **2005**; 28, 172-176. (1.085)

- 7). Haloxylinines A and B, Antifungal and Cholinesterase Inhibiting Piperidine Alkaloids from *Haloxylon salicornicum*
Farheen, S.; Ahmed, E.; Afza, N.; Malik, A.; **Shah, M.R.**; Nawaz, S.A.; Choudhary, M.I. *Chem. Pharm. Bull.* **2005**, *53(5)* 570-572. (1.223)
- 8). Lipoxygenase Inhibitory Constituents from *Indigofera oblongifolia*
Sharif, A.; Ahmad, E.; Malik, A.; Riaz, N.; Afza, N.; Nawaz, S.A.; Arshad, M.; **Shah, M.R.**; Choudhary, M.I. *Arch. Pharm. Res.* **2005**, *28(7)*, 761-764. (1.085)
- 9). Molecular Recognition by Synthetic Multifunctional Pores in Practice: Are Structural Studies Really Helpful?***
Baudry, Y.; Litvinchuk, S.; Mareda, J.; Nishihara, M.; Pasnin, D.; **Shah, M.R.**; Sakai, N.; Matile, S.; *Advanced Functional Materials* **2006**, *16(2)*, 169-179. (7.496)
- 10). Synthetic Ion Channels and Pores (2004-2005) Sisson, A.L.; **Shah, M.R.**; Bhosale, S.; Matil, S. *Chemical Society Review* **2006**, *35*, 1269 – 1286. (13.082)
- 11). Sorption kinetics of water vapors in chromatographic silica gel, Khan, M.; Shah, M. R. *Journal of the Chemical Society of Pakistan* **2007**, *29(3)*: 209-212. (0.095)
- 12). 4,4-Diiodo-3,3-dimethoxybiphenyl, Ali, Q.; **Shah, M.R.**; VanDerveer, D. *Acta Crystallographic Section E*, **2008**, *E64*, o910. (0.508)
- 13). Nepetolide: A New Diterpene from *Nepeta suaveis*
Hussain, J.; Ullah, F.; Hussain, H Hussain, S. T.; **Shah M. R.** *Zeitschrift für Naturforschung* **2008**, *63b*, 591-595. (0.770)
- 14). 2, 2-(Biphenyl-2,2_-diylldioxy)diacetohydrazide. Ibad, F.; Mustafa, A.; **Shah, M.R.**; VanDerveer, D *Acta Crystallographic Section E*, **2008**, *E64*, o1130-1131. (0.508)
- 15). Synthesis and characterization of iron palladium Nanoalloy.
Nazir, R.; Mazhar, M.; Akhter, J.; **Shah, M.R.**; Khan, N.W.; Nadeem, M.; Saddique, M.; Mahmood, M.; Butt, N.M. *Nanotechnology* **2008**, *19*, 185608. (3.310)
- 16). Di-tert-butyl 2,2-(biphenyl-2,2_-diylldioxy)diacetate. Ali, Q.; Ibad, F.; **Shah, M.R.**; VanDerveer, D. *Acta Crystallographic Section E*, **2008**, *E64*, o1408. (0.508)
- 17). 2,2-[Biphenyl-2,2-diylbis (oxy)]diacetic acid monohydrate Rabnawaz, M.; Ali, Q.; **Shah, M.R.**; Singh, K. *Acta Crystallographic Section E*, **2008** *E64*, o1909. (0.508)

- 18). Preventive role of ZH-67-2-1 in adjuvant-induced arthritis in rats. Shah, S.U.; Jawed, H.; Hussain, Z.; **Shah, M.R.**; Simjee, S.U. *Inflammation Research* **2008**, *57*, S106-S106 (1.504)
- 19). 4-Iodo-3,3-dimethoxybiphenyl, Ali, Q.; Hussain, Z.; **Shah, M.R.**; VanDerveer, D. *Acta Crystallographic Section E*, **2008**, *E64*, o1377 . (0.508)
- 20). In vitro antifungal and antibacterial activities of extracts of *Galium tricorntutum* subsp. Longipedunculatum.
Jan, A.K.; **Shah, M.R.**; Anis, I.; Marwat, I.K. *Journal of Enzyme Inhibition and Medicinal Chemistry*, **2009**, *24*(1) 192-196 (1.343)
- 21). *N,N'*-Bis(4-methoxybenzylidene)-4,4'-(*m*-phenylenedioxy)dianiline. Nadeem, S.; **Shah, M.R.**; VanDerveer D. *Acta Crystallographic Section E*, **2009**, *E65*, o897 . (0.508)
- 22). Benzyl 2-(4-bromoanilino)-4,4-dimethyl-6-oxocyclohex-1-enecarbodithioate: first triclinic polymorph. El-Ashry, E.S.H. ; Amer, M.R. ; **Shah, M.R.**; Ng, S.W. *Acta Crystallographic Section E*, **2009**, *E65*, o597 . (0.508)
- 23). Enantioselective chromatography—A powerful tool for the discrimination of biotic and abiotic transformation processes of chiral environmental pollutantsHünerfuss, H.; **Shah M.R.** *Journal of Chromatography A* **2009** 1216, 481-502 (3.641)
- 24). Bis[2-(3-bromopropoxy)-5-methylphenyl]methane. Hussain, Z.; **Shah, M.R.**; Anis, I.; Ng, S.W. *Acta Crystallographic Section E*, **2009**, *E65*, o907. (0.508)
- 25). Benzyl 2-(4-bromoanilino)-4,4-dimethyl-6-oxocyclohex-1-enecarbodithioate: Second triclinic polymorph. El-Ashry, E.S.H. ; Amer, M.R. ; **Shah, M.R.**; Ng, S.W. *Acta Crystallographic Section E*, **2009**, *E65*, o598 . (0.508)
- 26). Antibacterial, antifungal, insecticidal, cytotoxicity and phytotoxicity studies on *Indigofera gerardiana*,
Nisar M.; Shafiq A.T.; Inamullah K.; **Shah, M.R.**; Ihsan A. *Journal of Enzyme Inhibition and Medicinal Chemistry*, **2009**, *24*(1), 224–229 (1.343)
- 27). Dimethyl (1,1'-binaphthyl-2,2'-dioxy)diacetate. Mustafa, A.; **Shah, M.R.**; Khatoon, M.; Ng, S.W. *Acta Crystallographic Section E*, **2009**, *E65*, o911. (0.508)

- 28). *n*-Undecanyl 2-(4-chloroanilino)-4,4-dimethyl-6-oxocyclohex-1-enecarbodithioate. El-Ashry, E.S.H. ; Amer, M.R. ; **Shah, M.R.**; Ng, S.W. *Acta Crystallographic Section E*, **2009**, *E65*, o599 . (0.508)
- 29). Enzyme-Mediated Deposition of a TiO₂ Coating onto Biofunctionalized WS₂ Chalcogenide Nanotubes Tahir, M.N.; Natalio, F.; Therese, H.A.; Yella ,A.; Metz, N.; **Shah, M.R.**; Mugnaioli , E.; Berger ,R.; Theato, P.; Schröder H.C.; Müller, W.E.G.; Tremel, W. *Advanced Functional Materials* **2009**, *19(2)*, 285-291 (7.496)
- 30). Di-*tert*-butyl (1,1'-binaphthyl-2,2'-dioxy)diacetate. Mustafa, A.; **Shah, M.R.**; Khatoon, M.; Ng, S.W. *Acta Crystallographic Section E*, **2009**, *E65*, o912. (0.508)
- 31). *n*-Undecanyl 2-(4-bromoanilino)-4,4-dimethyl-6-oxocyclohex-1-enecarbodithioate. El-Ashry, E.S.H.; Amer, M.R. ; **Shah, M.R.**; Ng, S.W. *Acta Crystallographic Section E*, **2009**, *E65*, o600 . (0.508)
- 32). Low temperature synthesis, magnetic and electrical properties of iron–magnesium superparamagnetic nanoalloy Nazir, R.; Mazhar, M.; Akhtar, M.J.; Nadeem, M.; Siddique, M.; **Shah, M.R.** Hasanain, S.K. *Journal of Alloys and Compound* **2009**, *479*, 97-101. (1.455)
- 33). *n*-Undecanyl 2-(2,4-dichloroanilino)-4,4-dimethyl-6-oxocyclohex-1-enecarbodithioate. El-Ashry, E.S.H. ; Amer, M.R. ; **Shah, M.R.**; Ng, S.W. *Acta Crystallographic Section E*, **2009**, *E65*, o601 . (0.508)
- 34). 2-Hydroxyethyl 2-(2,4-dichloroanilino)-4,4-dimethyl-6-oxocyclohex-1-enecarbodithioate. El-Ashry, E.S.H. ; Amer, M.R. ; **Shah, M.R.**; Ng, S.W. *Acta Crystallographic Section E*, **2009**, *E65*, o602 . (0.508)
- 35). The formation of tethered bilayer lipid membranes probed by various surface sensitive techniques Vockenroth, I.; Rossi, C.; **Shah M.R.**; Koper, I. *Biointerphases*, **2009**, *4(2)*, 19-26.
- 36). Methyl (2'-hydroxybiphenyl-2-yloxy)acetate, Rabnawaz, M.; Khan, B.; **Shah, M.R.**; Anis, I.; Ng, S.W. *Acta Crystallographic Section E*, **2009**, *E65*, o931 . (0.508)
- 37). 2,9-Dichloro-1,10-phenanthroline, Nadeem, S.; **Shah, M.R.**; Ng, S.W. *Acta Crystallographic Section E*, **2009**, *E65*, o922 . (0.508)

- 38). Nepetalal and nepetanoate: A new diterpene aldehyde and a benzene derivative ester from *Nepeta juncea*. Hussain, J.; Jamila, N.; Ullah, F.; Devkota, K.P.; **Shah, M.R.**; Anwar, S. *Magnetic Resonance in Chemistry* **2009**, *47*, 625-627 (1.434)
- 39). 2, 3, 4,6-Tetra-*O*-acetyl- β -D-galactopyranosyl 2-(2,4-dichloroanilino)-4,4-dimethyl-6-oxocyclohex-1-enecarbodithioate El-Ashry, E.S.H. ; Amer, M.R. ; **Shah, M.R.**; Ng, S.W. *Acta Crystallographic Section E*, **2009**, *E65*, o1106. (0.508)
- 40). 2-(2-Methyl-5-nitro-1-*H*-imidazol-1-yl)ethyl 3-bromobenzoate. Bahadur, S.; Anis, I.; **Shah, M.R.**; Singh K. *Acta Crystallographic Section E*, **2009**, *E65*, o1176. (0.508)
- 41). Ethyl 2-(3-acetyl-6-methyl-2-oxo-2H-pyran-4-yloxy)acetate. Rabnawaz, M.; Benson, S.; Khan, B.; **Shah, M.R.** *Acta Crystallographic Section E*, **2009**, *E65*. (0.508)(75.283)
- 42). Urease inhibitors from *Hypericum oblongifolium* Wall. Arfan, M.; Ali, M.; Anis, I., Ahmad, H.; Choudhary, M.I.; Khan, A.; **Shah, M.R.** *Journal of Enzyme Inhibition and Medicinal Chemistry*, **2009**, (1.343)
- 43). *n*-Butyl 2-(2,4-dichloroanilino)-4,4-dimethyl-6-oxocyclohex-1-enecarbodithioate. El-Ashry, E.S.H. ; Amer, M.R. ; **Shah, M.R.**; Ng, S.W. *Acta Crystallographic Section E*, **2009**, *E65*, o2459. (0.508)
- 44). Recent Advances in Dimroth Rearrangements. El-Ashry, E.S.H.; Nadeem, S.; **Shah, M.R.**; El-Kilany, Y. *Advances in Heterocyclic Chemistry* **2009** (2.150)
- 45). Occurrence of diclofenac and its metabolites in surface water and effluent samples from Karachi, Pakistan, Scheurell, M.; Franke, S.; **Shah, M.R.**; Hünerfuss, H. *Chemospheres* **2009**, *77*, 870-876 (3.054)