

## Resume

**Dr. rer. nat. Mirza Arfan Yawer PhD**  
**Werner von Siemens Excellence Award 2015/16**

**Principal University of Education Lahore, Dera Ghazi Khan campus: +92-64-9260384, Cell: 03086061022**

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### Personals:

Father Name: Altaf Hussain  
Date / Place of Birth: 09-09-1981/ Multan **Pakistan**  
Married to Affiefa Yawer, Kids: Araiz yawer.

### Address:

- Mirza Arfan Yawer, House No. 47 Block (C), Dream Gardens, Defense road Lahore ,
- Associate Prof. Dr. Mirza Arfan Yawer, University of Education Lahore, DG Khan campus

### Data base:

- ✚ Total impact factor = **114**
- ✚ Citation = **527**
- ✚ H-index = **13**

### Research Topics (key words):

Recognition of inorganic anions in water using Bambusuril receptors

Synthesis of super oxide dismutase active complexes of Mn(II) and Fr(II), and related transition metal ions

Development of new Biomaterials for industrials application based on chitosan.

Isolation of chitin-biopolymers from cr-ustacean and fish scales and modification of isolated chitosan biopolymers (Biomaterials).

Supramolecular chemistry, anion receptors Bambusurils and Cucurbiturils

Homogeneous Catalysis and Co-ordination Chemistry.

## Positions Held:

**Principal/Director Campus:** Since **29-5-2019 to till date** University of Education Dera Ghazi Khan Campus

**Associate Professor:** Since **10-4-2019 to till date** University of Education Dera Ghazi Khan Campus

**Associate Professor:** since **24-9-2018 to 9-04-2019** at School of Science, department of Chemistry University of management and technology Lahore

**Project manager:** from **01-01-2018 to 31-03-2018**. Contipro pharma a.s, dolni dobouch Czech republic

**Senior Researcher:** From **Feb. 2012** to 31-12-2017  
Department of chemistry Masaryk University, Brno, Czech Republic.

**Post doctorate fellow: 2008 to 2011:** Friedrich Alexander University Erlangen – Nürnberg, Institute of Bio-inorganic Chemistry, Synthesis different types of ligands for (SOD active Fe(II) and Mn(II) complexes)

**PhD fellow: 2006 to 2008:** Rostock University Germany, Fellow of Higher Education Commission of Pakistan for Ph.D., under “*Development of Higher Level S&T Manpower through Split PhD Program*” **2005**.

**Junior Research fellow PhD:** HEJ Research Institute of Chemistry, **ICCBS** University of Karachi, Pakistan Natural product Chemistry, **2004-2006**

## Education:

**PhD, Dr. rer. nat.** with Distinction **MAGNA CUM LAUDE**, , **Sep. 2008** University of Rostock, Germany

**Supervisor:** Prof. Dr. Peter Langer

**Title:** *Synthesis of Functionalized 6-(Pyridyl)salicylates, Bis(benzophenones), Chlorinated 6H-Benzo[c]chromen-6-ones and 9H-Fluoren-9-ones, Isobenzomorphans and Dibenzo[b,d]pyrid-6-ones based on New Cyclocondensations of 1,3-Bis(silyloxy)-1,3-butadienes.*

**GRE Chemistry with 80%yl** from *ETS* April **2005**

**Master of Science**, (1<sup>st</sup> division) Chemistry, **2001-2003** The Islamia University of Bahawalpur, Pakistan

**Bachelor of Science**, (1<sup>st</sup> division) Maths A&B, Chemistry, **1999-2001** The Islamia University of Bahawalpur, Pakistan

**F.Sc.** (1<sup>st</sup> division) Mathematics, Chemistry, Physics, **1997-1999**  
Board of Intermediate and Secondary Education Bahawalpur, Bahawalpur

**SSC (matric).** (1<sup>st</sup> division) Chemistry, Physics, Biology, Mathematics, English etc. **1997.**  
Board of Intermediate and Secondary Education Bahawalpur, Bahawalpur

#### **Scholarships & Awards:**

**Werner von Siemens Excellence Award 4-2-2016** in Prague Czech Republic by the *Vice Prime Minister MVDr. Pavel Bělobrádek, Ph.D* of Czech Republic to **Dr. Mirza Arfan Yawer** as a team with Prof. Vladimir Sindelar and Vaclav Havel, for best research in basic Sciences, *Bambusuril: detection and transportation of Inorganic anions in water*

DFG fellowship for Postdoc at FA University Erlangen Germany from **2008 to 2011**

HEJ research Institute of Chemistry University of Karachi, Fellowship **2004-2006**

Honorary fellowship from ICCBS Karachi University, on achievement of 80%yl in GRE Chemistry from ETS, **2005-2006**

Fellow of Higher Education Commission of Pakistan for Ph D, under “*Development of Higher Level S&T Manpower through Split PhD Program*” **2005.**

#### **Technical Experience:**

NMR, FTIR, UV, HPLC, LC-NMR, several physical purification techniques chromatography, Solvent extraction and Crystallization, Mass spectrometry, spectra interpretation.

#### **Software Experiences:**

Good experience in MS word office, Chem. sketch, Chem. Office, excel, Experience in database (Crossfire, reaxys, Scifinder), laboratory management, equipment handling.

#### **Management experiences:**

Project management, Lab management, and mentor for bachelor and master students.

#### **Languages:**

English. Advance level

Czech: Intermediate

German: Basic

Urdu national language

Punjabi Mother Language

#### **Poster and Talks in Conferences:**

Mirza Arfan Yawer, Vaclav Havel, Vladimir Sindelar. Recognition of inorganic anions in pure water with bambusuril derivative In *10th International Symposium on Macrocyclic and Supramolecular Chemistry, June 28-July2, 2015, Strasbourg, France.* **2015**

V. Havela M. A. Yawera and V. Sindelara. Supramolecular approach to detection of multicomponent anion mixtures by <sup>1</sup>H NMR in aqueous environment. **Calix 2015 – 13th International Conference on Calixarenes – Giardini Naxos (Italy) 5-9 July 2015.**

Vladimir Sindelar, Mirza Arfan Yawer and Vaclav Havel. Anion binding in pure water using bambusuril macrocycle. *In 9th International Symposium on Macrocyclic and Supramolecular Chemistry, June 7-11, 2014, Shanghai, China. 2014.*

Vladimír Sindelar, Václav Havel and Mirza Arfan Yawer. Bambusuril Macrocycles for Anion Binding. *In International Symposium on Macrocyclic and Supramolecular Chemistry 8-ISMSC (2013). 2013.*

#### M.Phil/Ms students thesis under my Umbrella

UMT Lahore 2019	Sonia Tabassum	Extraction of chitsan from tiger prawn collected from arabian sea And its applications biomaterials.
UMT Lahore 2019	Muhammad Arsalan	Formulation hemostatic ointment based of Tranexamic Acid
UMT Lahore 2019	FAKHRA ASHRAF	Extraction of chitin from fish scales and its hydrolysis to chitosan using different inorganic basis
UMT Lahore 2019	USMAN KHALID	Development new perfumes based on gardenia essential oils
UMT Lahore 2019	SHEHAR BANO	In direct Synthesis of glycoluril derivatives
UMT Lahore 2019	MEMOONA RIAZ	Development new perfumes based on gardenia essential oils
UMT Lahore 2019	UZMA NAWAZ	Extraction and characterization of chitin and chitosan from crabs shells collected from Arabian sea
UMT Lahore 2019	Muhammad Iftikhar Ahmad	Extraction and characterization of chitin and chitosan from Mrigal carp (cirrhinus cirrhosus) fish scales
UMT Lahore 2019	Nadir Ali	Chitin extraction from scales of snakehead (Channa Maraulius) and its hydrolysis to prepare chitosan

#### Selected Papers

\*\*\*\*\***Mirza Arfan Yawer, Vaclav Havel, and Vladimir Sindelar\***, *Angew. Chem. Int. Ed.* **2015**, 54, 276 –279. A Bambusuril Macrocycle that Binds Anions in Water with High Affinity and Selectivity. **IF 11.7**

- \*\*\*\* Vaclav Havel, **Mirza Arfan Yawer**, and Vladimir Sindelar\*, *Chem.Comm.* **2015**, 51. 4666-4669. Real-time Analysis of Multiple Anion Mixtures in Aqueous Media Using A Single Anion Receptor. **IF 6.7**
- \*\*\* Dominik Lieb, Felix C. Friedel, **Mirza Yawer**, Achim Zahl, Marat M. Khusniyarov, Frank W. Heinemann, and Ivana Ivanović-Burmazović\* *Inorg. Chem.* **2013**: 52, 222–236, Dinuclear Seven-Coordinate Mn(II) Complexes: Effect of Manganese(II)-Hydroxo Species on Water Exchange and Superoxide Dismutase Activity, **IF 4.6**
- \*\*\*\* Ibrar Hussain, Jaworski Capricho and **Mirza A. Yawer**, online : 21 SEP 2016, DOI: 10.1002/adsc.201600354, *Synthesis of Biaryls via Ligand-Free Suzuki–Miyaura Cross-Coupling Reactions: A Review of Homogeneous and Heterogeneous Catalytic Developments.* **Advanced Synthesis & Catalysis.** **IF 5.6**

### Publications:

- 33 Muhammad Saleem, Ayesha Perveen, Erum Akbar Hussain, Majid Khan, Misbah Irshad, Muhammad Imrand,, Ahmad Irfand, , Riaz Hussain, Abdur Raufand **Mirza Arfan Yawer**, Solvent Free Synthesis of 2, 4, 6-triarylpyridine as Novel Urease Inhibitors and Anti-bacterial agents, *Bioorganic Research* accepted for publication (**2020**)
- 32 **Mirza Arfan Yawer**, Shehar Bano , Muhammad Saleem , Vladimir Sindelar , Riaz Hussain, Muhammad Imran , Ahmad Irfan , Muhammad Ali Hashmi, Mohammed A. Assiri, Abdur Rauf, Tareq Abu-Izneid urease inhibitory synthesis of 2,4-bis (4-cyanobenzyl) glycoluril using Sandeyer reaction and density theory investigation, *Current Organic Synthesis* (submitted **2019** ) for publication. **IF 1.9**
- 31 **Mirza Arfan Yawer**, Kristina Sleziakova, Lukas Pavlovec and Vladimir Sindelar, Bambusurils bearing nitro groups and their further modifications *Eur. J.Org. Chem*, 41-47, **2018.** **IF 3.0**
- 30 E. Torti, V. Havel, **M. A. Yawer**, L. Ludvíková, M. Babiak, P. Klán and V. Sindelar, Supramolecular storage and photorelease of an oxidizing agent: Bambusuril complexes for spatially controlled reactions *Chem. Eur. J.* 16768-16772, **2017.**
- 29 Lukas Mikulu, Romana Michalicova, Vivian Iglesias, **Mirza A Yawer**, Angel E. Kaifer,\*Premysl Lubal,\* and Vladimir Sindelar\* pH Control on the Sequential Uptake and Release of Organic Cations by Cucurbit[7]uril *Chem. Eur. J.* **2017**, *23*, 2350 – 2355
- 28 Ibrar Hussain, Jaworski Capricho and **Mirza A. Yawer**, online : 21 SEP 2016, DOI: 10.1002/adsc.201600354, *Synthesis of Biaryls via Ligand-Free Suzuki–*

*Miyaura Cross-Coupling Reactions: A Review of Homogeneous and Heterogeneous Catalytic Developments. Advanced Synthesis & Catalysis. IF 5.6*

- 27 **Mirza Arfan Yawer**, Marek Necas, Vldimir Sindelar, Rational construction of macrocycles consisting of methylene bridged ureas. *Tetrahedron*, **2016** 72, 2943 – 2946. IF **3.1**
- 26 Vaclav Havel, **Mirza Arfan Yawer**, and Vladimir Sindelar\*, *Chem.Comm.* **2015**, 51. 4666-4669. Real-time Analysis of Multiple Anion Mixtures in Aqueous Media Using A Single Anion Receptor. IF 6.7
- 25 **Mirza Arfan Yawer**, Vaclav Havel, and Vladimir Sindelar\*, *Angew. Chem. Int. Ed.* **2015**, 54, 276 –279. A Bambusuril Macrocycle that Binds Anions in Water with High Affinity and Selectivity. IF 11.7
- 24 Dede, Ruediger; Riahi, Abdolmajid; Shkoor, Mohanad; **Yawer, Mirza A.**; Hussain, Ibrar; Kelzhanova, Nazken; Abilov, Zharylkasyn A.; Falodun, Abiodun; Goerls, Helmar; Langer, Peter: *Zeitschrift fuer Naturforschung, B: A Journal of Chemical Sciences.* **2013**, 68(9), 1021-1030. IF 0.90
- 23 Dominik Lieb, Felix C. Friedel, **Mirza Yawer**, Achim Zahl, Marat M. Khusniyarov, Frank W. Heinemann, and Ivana Ivanović-Burmazović\* *Inorg. Chem.* **2013**: 52, 222–236, Dinuclear Seven-Coordinate Mn(II) Complexes: Effect of Manganese(II)-Hydroxo Species on Water Exchange and Superoxide Dismutase Activity, IF **4.6**
- 22 Bellur, E.; **Yawer, M. A.**; Hussain, I.; Riahi, A.; Fatunsin, O.; Fischer, C.; Langer, P.: *Synfacts* 2009; 2009: 0374-0374. *Synthesis of Disubstituted Pyrroles from [n]1,3-Dicarbonyls and Azides* IF **2.7**
- 21 Esen Bellur, **Mirza A. Yawer**, Ibrar Hussain, Abdolmajid Riahi, Olumide Fatunsin, Christine Fischer, Peter Langer\*, *Synthesis* **2009**, 227-242. "Synthesis of 3-Acylpyrroles, 3-(Alkoxy carbonyl)pyrroles, 6,7-Dihydro-1*H*-indol-4(5*H*)-ones and 3-Benzoylpyridines based on Staudinger-Aza-Wittig Reactions of 1,3-Dicarbonyl Compounds with 2- and 3-Azido-1,1-dialkoxyalkanes". IF **2.5**
- 20 Stefan Büttner, Abdolmajid Riahi, Ibrar Hussain, **Mirza A. Yawer**, Mathias Lubbe, Alexander Villinger, Helmut Reinke, Christine Fischer, Peter Langer\*, *Tetrahedron* **2009** 65 (10) 2124–2135, First Synthesis of Functionalized 5-Aryl-3-(trifluoromethyl)phenols by Regioselective [3+3] Cyclocondensations of 1,3-Bis(silyloxy)-1,3-butadienes with 3-Aryl-3-Silyloxy-1-trifluoromethyl-2-en-1-ones. IF **3.1**
- 19 Abdolmajid Riahi, Mohanad Shkoor, Olumide Fatunsin, **Mirza A. Yawer**, Ibrar Hussain, Christine Fischer, Peter Langer, Regioselective synthesis of amino- and nitroarenes based on [3+3] cyclocondensations of 1,3-bis(silyloxy)-1,3-butadienes. *Tetrahedron* 65, (45) **2009**, 9300–9315. IF **3.1**

- 18 Stefanie Reim, Matthias Lau, Muhammad Adeel, Ibrar Hussain, **Mirza A. Yawer**, Abdolmajid Riahi, Zafar Ahmed, Christine Fischer, Helmut Reinke, Peter Langer\*, **Synthesis** **2009**, 445-463. "Synthesis of Biaryls, Fluorenones, Cyclopenta[*def*]phenanthren-4-ones and Benzophenones based on Formal [3+3] Cyclocondensations of 1,3-Bis(silyloxy)-1,3-butadienes". **IF 2.5**
- 17 Mohanad Shkoor, Abdolmajid Riahi, Olumide Fatunsin, Ibrar Hussain, **Mirza A. Yawer**, Mathias Lubbe, Stefanie Reim, Helmut Reinke, Christine Fischer, Peter Langer\*, **Org. Biomol. Chem.** **2009**, 7, 2182-2186. "Diversity-Oriented Synthesis of 1-Hydroxy-2,4-benzodioxates by Regioselective [3+3] Cyclocondensations of 1,3-Bis(silyloxy)-1,3-butadienes with 3-Alkoxyand 3-Silyloxy-2-alkoxycarbonyl-2-en-1-ones". **IF 3.7**
- 16 Ibrar Hussain, **Mirza Arfan Yawer**, Michael Lalk, Ulrike Lindequist, Alexander Villinger, Christine Fischer, Peter Langer\*, **Bioorg. Med. Chem.** **2008**, 16, 9898-9903. "Hetero-Diels-Alder Reaction of 1,3-Bis(trimethylsilyloxy)-1,3-butadienes with Arylsulfonylcyanides. Synthesis and Antimicrobial Activity of 4-Hydroxy-2-(arylsulfonyl)pyridines". **IF 3.2**
- 15 **Mirza Arfan yawer**, Ibrar Hussain, Jörg-Peter Gütlein, Andreas Schmidt, Haijun Jiao, Hemit Reinke, Anke Spannerberg and Peter Langer\*, **Eur. J.Org. Chem.**, **2008**, 6, 4193-4199. "Synthesis of Functionalized Isobenzomorphans by Two-Step Cyclocondensation of 1,3-Bis(trimethylsilyloxy)-1,3-butadienes with Isoquinolines". **IF 3.3**
- 14 **Mirza Arfan Yawer**, Ibrar Hussain, Inam Iqbal, Anke Spannerberg and Peter Langer\*, **Tetrahedron Lett.** **2008**, 4467-4469. "Synthesis of Functionalized Dibenzo[*b,d*]pyrid-6-ones based on a [3+3]-Cyclocondensation / Lactamization Strategy". **IF 2.6**
- 13 **Mirza A. Yawer**, Abdolmajid Riahi, Muhammad Adeel, Ibrar Hussain, Christine Fischer, Peter Langer\*, **Synthesis**, **2008**, 1276-1282. "One-pot synthesis of 6-(pyridyl)salicylates by formal [3+3] cyclizations of 1,3-bis(silyl enol ethers) with 3-pyridyl-3-silyloxy-2-en-1-ones". **IF 2.5**
- 12 **Mirza A. Yawer**, Ibrar Hussain, Christine Fischer, Helmar Görls, Peter Langer\*, **Tetrahedron** **2008**, 64, 5, 894-900, (Symposium-in print) "Synthesis of 2-Benzoyl-4-(2-hydroxybenzoyl)phenols by Catalytic Domino 'Michael-Retro-Michael-Mukaiyama-Aldol' Reactions of 1-Aryl-1,3-bis(silyloxy)buta-1,3-dienes with 3-Formylchromones. **IF 3.1**
- 11 Ibrar Hussain, Abdolmajid Riahi, **Mirza Arfan Yawer**, Alexander Villinger, Christine Fischer, Helmar Görls, Peter Langer\*, **Org. BioMol. Chem.** **2008**, 6, 3542-3551. One-Pot Synthesis of 6-(Thien-2-yl)- and 6-(Fur-2-yl)salicylates based on Regioselective [3+3] Cyclizations of 1,3-Bis(trimethyl-silyloxy)-1,3-butadienes. **IF 3.7**

- 10 Ibrar Hussain, **Mirza Arfan Yawer**, Bettina Appel, Muhammad sher, Ahmad Mahal, Alexander Villinger and Peter Langer\*, **Tetrahedron**. **2008**, *64*, 8003-8009. Synthesis of 4-Hydroxy- and 2,4-Dihydroxy-homophthalates by [4+2] Cycloaddition of 1,3-Bis(trimethylsilyloxy)-1,3-butadienes with Dimethyl Allene-1,3-dicarboxylate. **IF 3.1**
  
- 9 Ibrar Hussain, **Mirza A. Yawer**, Matthias Lau, Thomas Pundt, Christine Fischer, Helmut Reinke, Helmar Görls, Peter Langer\*, **Eur. J.Org. Chem.** **2008**, 503-518. "Regioselective Synthesis of Fluorinated Phenols, Biaryls, 6H-Benzo[c]chromen-6-ones and Fluorenones based on Formal [3+3] Cyclizations of 1,3-Bis(Silyl Enol Ethers)". **IF 3.3**
  
- 8 Muhammad Adeel, Stefanie Reim, **Mirza A. Yawer**, Ibrar Hussain, Alexander Villinger, Peter Langer\*, **Synlett** **2008**, 2629-2632 "Synthesis and Reactions of the First Fluorine-Containing 1,3-Bis(trimethylsilyloxy)-1,3-butadienes". **IF 2.7**
  
- 7 Stefanie Reim, Muhammad Adeel, Ibrar Hussain, **Mirza A. Yawer**, Alexander Villinger, Peter Langer\*, **Tetrahedron Lett.** **2008**, *49*, 4901-4904. "Synthesis and Reactions of the First 2-Chloro-1,3-bis(trimethylsilyloxy)-1,3-butadienes". **IF 2.6**
  
- 6 **Mirza Arfan Yawer**, Ibrar Hussain, Stefanie Reim, Zafar Ahmed, Ehsan Ullah, Inam Iqbal, Christine Fischer, Helmut Reinke, Helmar Görls, and Peter Langer, **Tetrahedron** **2007**, *63*, 12562-12575. "Regioselective Synthesis of 4-Chlorophenols, 10-Chloro-7-hydroxy-6H-benzo[c]chromen-6-ones and 4-Chloro-1-hydroxy-9H-fluoren-9-ones based on [3+3] Cyclizations of 1,3-Bis(silyloxy)-1,3-dienes with 2-Chloro-3-silyloxy-2-en-1-ones". **IF 3.1**
  
- 5 **Mirza Arfan Yawer**, Ejaz Ahmed, Abdul Malik\*, Muhammad Ashraf, Muhammad Azam Rasool, and Nighat Afza, New Lipoxygenase-Inhibiting Constituents from Calligonum polygonoides **CHEMISTRY & BIODIVERSITY** – Vol. *4*, **2007**, 1578-1585. **IF 1.9**
  
- 4 Ibrar Hussain, Van Thi Hong Nguyen, **Mirza Arfan Yawer**, Tuan Thanh Dang, Christine Fischer, Helmut Reinke, Peter Langer\*, **J. Org. Chem.** **2007**, *72*, 6255-6258. "Synthesis of Dibenzo[b,d]pyran-6-ones based on [3+3] Cyclizations of 1,3-Bis(Silyl Enol Ethers) with 3-Silyloxy-2-en-1-ones". **IF 4.5**
  
- 3 Thomas Pundt, Matthias Lau, Ibrar Hussain, **Mirza, A. Yawer**, Helmut Reinke, Peter Langer\*, **Tetrahedron Lett.** **2007**, *48*, 2745-2747. One-Pot Synthesis of Aryl Fluorides by [3+3] Cyclization of 1,3-Bis(Silyl Enol Ethers) with 2-Fluoro-3-silyloxy-2-en-1-ones. **IF 2.6**
  
- 2 Rüdiger Dede, Lars Michaelis, Dilver Fuentes, **Mirza A. Yawer**, Ibrar Hussain, Christine Fischer, Peter Langer\*, **Tetrahedron** **2007**, *63*, 12547-12561. "Synthesis of 4-Alkoxy-carbonyl-butenolides by Uncatalyzed One-Pot Cyclization of 1,3-Bis(silyloxy)alk-1-enes with Oxalyl Chloride". **IF 3.1**

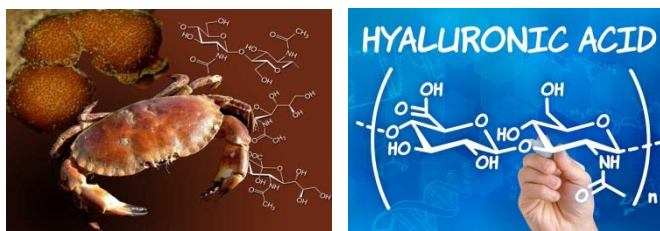


- 1 Phytochemical investigations of *Indigofera oblongifolia*, A. Sharif, E. Ahmad, A. Malik, N. Afza, N. Riaz and **M. Arfan Yawar**, *J. Chem. Soc. Pak*, **2006**, 28, 1, 101-104. **IF 1.3**

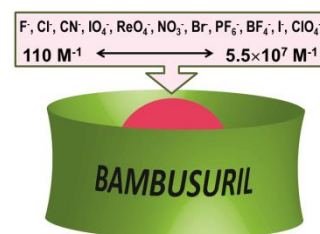
#### Referees:

- › **Prof. Dr. Peter Langer**  
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- › **Prof. Dr. Vladimir Sindelar**  
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- › **Dr. Martin Hein**  
Institut für chemie, Albert Einstein str. 3a,  
8059, Univerisity of Rostock,  
Rostock, Germany.  
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Most recently my research focuses on the modification of biopolymers that can be isolated from fish scales and crustacean, like chitin, chitosan and hyaluronic acid from natural sources and its chemical modification to stabilize in natural environment for pharmaceutical uses.



Another part of my research is circled around the design and the synthesis of rigid macrocyclic molecule for the recognition of toxic inorganic and organic anions and hazardous non chromophoric organic molecule. For that initially I synthesize unique glycoluril derivative that can readily be transformed to rigid macrocycles like Cucurbituril and Bambusuril. Bambusurils are recently developed macrocycle have displayed potential applications to serve as receptors for toxic and none toxic anions.



Last year, I have reported a new water soluble derivative of the said macrocycle that was successfully used to recognize and and transport several inorganic anion in water at neutral pH. This development have been appreciated by the Werner von Siemens foundation and I won the **Werner von Siemens award** for the year 2015/16 as a team of three scientists (principal investigator Dr. Mirza Arfan Yawer, student Vaclave Havel and Mentor Prof. Vladimir Sindelar) [Award](#). This research line has an enormous potential due to the size of cavity and rigidity and a number possibilities to modify the portals of macrocycle according to the requirement of the desired edifice.

#### My long term goals are:

- 1) Modification of isolated biopolymers, Development of methods for the isolation of chitin and hyaluronic acid for industries and at laboratory scale,
- 2) Development of new Biomaterials by introducing synthesized macrocycles on biopolymers for the purification of water from heavy metals and toxic anion and organic toxicants.

New supramolecular hosts like bambusurils and there structural modification....

- 3) Elimination of the requirement of expensive instrumental techniques like NMR, UV and ITC for the detection and recognition of the toxic anions present in industrial water waste, water reservoirs, that (receptor BU) could serve as tool to check the presence of toxic anion in water and environment.
- 4) Detection of toxic anion present in water by naked eye (monitoring the change in color) is my ultimate goal toward green chemistry
- 5) Secondly the macrocycle shows strong affinity for Iodide (radioactive  $I^{131}$ ) that will make it possible to use selectively as a tool for the detection of cancer cells in in-vivo and in-vitro (by collaboration at RECETOX Msasryk University Brno Czech Republic) in the field of health sciences.

6) From pharmaceutical point of view the functionalized bambusuril derivative can be hand full for drug delivery due to the proved nontoxicity of macrocycle and its ability to carry different molecules.

7) Adsorption of anion free macrocycle on Gold and Titanium nanoparticles will serve for transportation of anion in its particle's form.

8) I will also use the synthesized derivatives containing different functional groups at the portals of macrocycle to develop cross linking polymers, which will results to form thin films, polymeric sheets and gels, potentially the presence of small anion free cavities in thin films sheets and gels will open the doors for new application that will allow the permeability of small gases through polymeric films of bambusuril.

### Short term small projects

Beyond these long term projects I have several short term ideas, At the outset of my lab. By using commercially available simple urea and and it derivative with along with other common laboratory regents to synthesize various Cucurbiturils derivatives from 5 membered smallest Cucurbituril:CB to a computationally purposed big CB10, CB12, and CB14 and their application in various applied fields. I will be working also on the synthesis of ligand for SOD active Fe and Mn complexes.

To complete these projects I will write handful proposals to different national and international funding agencies. I will also convince distinguished industries for said industry oriented projects to fulfill chemicals and instrumental needs.

My 11 years broad experience at various European institutes in the areas of synthetic and physical organic chemistry, supramolecular chemistry and biopolymers, along with experience of co-supervisions of several bachelor's, master's students and four PhD's will help me to establish my own research group. I have already completed several projects and the results are appeared in well reputed journals of high impact factors. My total impact factor = 111 citation = 417 and H-index = 12

Profile on: [ResearcherID: L-7248-2015](https://orcid.org/0000-0001-9142-2015)

The synthesis of the receptors and isolation of biopolymers will be afforded at the national institute, for cutting edge techniques I have already good collaborator at advance institutes in Germany Professor peter Langer at Rostock University, Professor Ivana Ivanovic-Burmazovic at Erlangen University Germany and Professor Vladimir Sindelar at Research Center for Toxic Compounds in the Environment Masaryk University Brno Czech Republic.

**SIEMENS**

Siemens takes pleasure in presenting the

# Werner von Siemens Award

to

**Dr. Mirza Arfan Yawer**

Masaryk University

for the Most Significant  
Result of Basic Research

**Bambusurils: Compounds for the Detection  
and Transport of Inorganic Anions in Water**



## Diploma

Prague, 4 February 2016

Ing. Eduard Pališek, Ph.D., MBA  
CEO  
Siemens Czech Republic

prof. Ing. Jiří Drahoš, DrSc., dr. h. c.  
Chairman of the Academy of Sciences of the Czech Republic  
Chairman of the Expert Jury

DIE MATHEMATISCH-  
NATURWISSENSCHAFTLICHE FAKULTÄT  
DER UNIVERSITÄT ROSTOCK

VERLEIHT

UNTER DEM REKTORAT DES PROFESSORS DER INFORMATIK  
DR. RER. NAT. HABIL. THOMAS STROTHOTTE

HERRN M. SC. MIRZA ARFAN YAWER

GEBOREN AM 09.09.1981 IN MULTAN / PAKISTAN,

DEN AKADEMISCHEN GRAD

DOCTOR RERUM NATURALIUM

(DR. RER. NAT.),

NACHDEM ER IN EINEM ORDNUNGSGEMÄSSEN PROMOTIONSVERFAHREN  
DURCH DIE DISSERTATION „SYNTHESIS OF FUNCTIONALIZED  
6-(PYRIDYL)SALICYLATES, BIS(BENZOPHENONES), CHLORINATED -  
6H-BENZO[C]CHROMEN-6-ONES, 9H-FLUOREN-9-ONES, ISOBENZOMORPHANS  
AND DIBENZO[B,D]PYRID-6-ONES BASED ON NEW CYCLOCONDENSATIONS  
OF 1,3-BIS(SILYOXY)-1,3-BUTADIENES“ SOWIE DURCH DIE MÜNDLICHEN  
PROMOTIONSLEISTUNGEN SEINE WISSENSCHAFTLICHE  
BEFÄHIGUNG AUF DEM GEBIET

ORGANISCHE CHEMIE

NACHGEWIESEN UND DAS PRÄDIKAT

MAGNA CUM LAUDE

ERHALTEN HAT.

ROSTOCK, 6. OKTOBER 2008



*H. Schubert*  
PROF. DR. HENDRIK SCHUBERT  
DEKAN