

CV and List of Publications

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EDUCATION

Ph.D. (Organic Chemistry) 2007
H. E. J. Research Institute of Chemistry
University of Karachi, Karachi-75270, Pakistan

Thesis Title: "Isolation, Structure Elucidation and Biotransformation Studies on Secondary Metabolites from *Withania Somnifera* and Related Plants"

M.Sc. (Organic Chemistry) 2000
University of Karachi, Karachi-75270, Pakistan

B.Sc. (Chemistry, Biochemistry, Microbiology) 1998
Jinnah University for Women, Karachi, Pakistan

AWARDS & HONORS (INTERNATIONAL)

- Elected as Pakistan Hub Participant of "A Global Network of the Tropical neglected Diseases (NTD)", funded by "Grand Challenge Research Fund (GCRF)" and managed by the Durham University, UK (<https://ntd-network.org/>) 2019
- TWAS (The World Academy of Sciences for the advancement of science in developing countries) Young Affiliate 2013 2013
- Appointed as Visiting Scientist at Atta-ur-Rahman Institute for Natural Product Discovery (RiND), University Technology Mara (UiTM), Malaysia. 2013
- TWAS Regional Prize for Young Scientist from the Third World Academy of Sciences (TWAS) 2011

AWARDS & HONORS (NATIONAL)

- Member of Pakistan Academy of Sciences 2017
- Elected as Joint Secretary of the Pakistan Crystallographic Association 2010
- Merit Scholarship for Ph. D. Students from HEC (Higher Education Commission, Pakistan), 2003
- 1st class 1st position in M. Sc. (Chemistry) 2001
- AlHaj Molvi-Riazudin Gold Medal for Securing 1st Position in M.Sc. (Chemistry) 2001

EXPERIENCE

Professor
H.E.J. Research Institute of Chemistry
International Center for Chemical and Biological Sciences
University of Karachi

August 2021
Present

Associate Professor

H.E.J. Research Institute of Chemistry
International Center for Chemical and Biological Sciences
University of Karachi

January 2017
Present

Assistant Professor

H.E.J. Research Institute of Chemistry
International Center for Chemical and Biological Sciences
University of Karachi

July 2010
Dec. 2016

Research Officer

H.E.J. Research Institute of Chemistry
International Center for Chemical and Biological Sciences
University of Karachi

July. 2008 -
May 2010

Post Doctoral Research Associate

Single X-Ray Crystallography Laboratory, School of Chemical
Sciences and Food Technology, Faculty of Science and Technology,
Universiti Kebangsaan, Malaysia

Nov. 2007 -
April 2008

Senior Research Fellow

H.E.J. Research Institute of Chemistry
University of Karachi, Karachi-75270, Pakistan
“Isolation, Structure Elucidation and Biotransformation Studies
on Secondary Metabolites from *Withania somnifera* and related
Plants”

April. 2001-
April. 2007

**OTHER
SERVICES**

- Incharge Single-Crystal X-ray Diffraction Facility of the ICCBS Since 2010 to date
- Coordinator, PABIC (Pakistan Biotechnology Information Center, <https://www.pabic.com.pk/contact/>) Since 2013 to date
- Coordinator, XRD Techniques User Group of Pakistan (XRD-PAK)
- Actively involved as team member for organizing scientific events, such as workshops and conferences for both ICCBS and PABIC.

A. BOOKS EDITED

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|----|---|-----------------|
| 1. | “ <i>Science of Spices and Culinary Herbs: Latest Laboratory, Pre-clinical and Clinical Studies Vol. I</i> ”, Atta-ur-Rahman, Choudhary M. I. and Yousuf S., Bentham Science Publishers, Amsterdam (2019). ISBN (Print): 978-1-68108-752-8, ISBN (online): 978-1-68108-751-1 | The Netherlands |
| 2. | “ <i>Science of Spices and Culinary Herbs: Latest Laboratory, Pre-clinical and Clinical Studies Vol. II</i> ”, Atta-ur-Rahman, Choudhary M. I. and Yousuf S., Bentham Science Publishers, Amsterdam (2020). ISBN (Print): 978-981-14-4147-9, ISBN (Online): 978-981-14-4149-3 | The Netherlands |
| 3. | “ <i>Science of Spices and Culinary Herbs: Latest Laboratory, Pre-clinical and Clinical Studies Vol. III</i> ”, Atta-ur-Rahman, Choudhary M. I. and Yousuf S., Bentham Science Publishers, Amsterdam (2020). ISBN (Print) : 978-981-14-6834-6, ISBN (Online): 978-981-14-6836-0 | The Netherlands |
| 4. | “ <i>Science of Spices and Culinary Herbs: Latest Laboratory, Pre-clinical and Clinical Studies Vol. IV</i> ”, Atta-ur-Rahman, Choudhary M. I. and Yousuf S., Bentham Science Publishers, Amsterdam (2021). ISBN (Print): 978-981-4998-13-0, ISBN: (Online)978-981-4998-12-3 | The Netherlands |
| 5. | “ <i>Science of Spices and Culinary Herbs: Latest Laboratory, Pre-clinical and Clinical Studies Vol. V</i> ”, Atta-ur-Rahman, Choudhary M. I. and Yousuf S., Bentham Science Publishers, Amsterdam (2021). ISBN (Print): 978-981-4998-16-1, ISBN (Online): 978-981-4998-15-4 | The Netherlands |

B. CHAPTERS IN BOOKS**Published in**

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|-----|--|---------|
| 6. | “Seperation of Phenyl Propanoids and Evaluation of Their Antioxidant Activities”, Yousuf S. , Choudhary M. I. and Atta-ur-Rahman, Advance Protocols in oxidative Stress II (appear in a series, Methods in Molecular Biology, 594), <i>The Humana Press</i> , 357 (2010). | USA |
| 7. | Agriculture Biotechnology in OIC Countries-Role of COMSTECH and PABIC, Choudhary M. I., and Yousuf S. , Communication Challenges and Convergence in Crop Biotechnology, Published by ISAAA and SEARCA, (2011). | USA |
| 8. | Publications: Contributing to the Robust Knowledge on Crop Biotechnology and Science Communication, Arujnan M., Odhong J., Zhang T., Abdalla N., Choudhary B., Yousuf S. and Attathom S. published in ISAAA Breifs 45, From Monologue to Stakeholders Engagment: The Evaluation of Biotech. Communication. Published by ISAAA (2013). | USA |
| 9. | “Withanolides- Chemistry and Antitumor Activity”, Choudhary M. I. Yousuf S. , and Atta-ur-Rahman, Hand Book of Natural Products, published by Springer, 3465 (2013). | Germany |
| 10. | “Lichens: Chemistry and Biological Acitivites”, Yousuf S. , Choudhary M. I. and Atta-ur-Rahman, Studies in Natural Product Chemistry, published by Elsevier 3465 (2014). | USA |

C. RESEARCH PUBLICATIONS**Published in**

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|----|--|-------------|
| 1. | Choudhary M. I., Yousuf S. , Nawaz S. A., Ahmed S., Atta-ur-Rahman, “Cholinesterase Inhibiting Withanolides from <i>Withania somnifera</i> ”, <i>Chem. Pharm. Bull.</i> , 58(11) 1358 (2004). | Japan |
| 2. | Choudhary M. I., Yousuf S. , Ahmed S., Samreen, Yasmeen K., Atta-ur-Rahman, “Antileishmanial physalins from <i>Physalis minima</i> ”, <i>Chemistry and Biodiversity</i> , 2 1164 (2005). | Switzerland |
| 3. | Choudhary M. I., Nawaz S. A., Zaheer-ul-Haq, Lodhi A., Jalil S., Riaz N., Yousuf S. , Malik A., Atta-ur-Rahman, “Withanolides, a new calss of cholinesterase inhibitors with calcium antagonistic properties”, <i>BBRC</i> , 334, 276-287 (2005). | UK |

4. Choudhary M. I., **Yousuf S.**, Anjum S., Atta-ur-Rahman, Fun Hoong-Kun, Ali S., "5 α -Chloro-16,24-cyclo-13,14-secoergost-2-ene-18,26-dioic acid-14:17,14:27-diepoxy-6 α ,13,20,22-tetrahydroxy-1,15-dioxo- γ -lactone δ -lactone meth-anolsolvate monohydrate", *Acta Cryst. E*, **61** 3523 (2005). USA
5. Choudhary M. I., **Yousuf S.**, Samreen, Shah S. A. S., Ahmed S., Atta-ur-Rahman "Biotransformation of physalin H and antileishmanial activity of transformed products", *Chem. Pharm. Bull.* **54(7)** 927-930, (2006). Japan
6. Yamin B. M., Deris H., Malik Z. M., **Yousuf S***, "N-(Biophenyl-4-yl-carbonyl)-N-(2-pyridyl-methyl) thiourea", *Acta Cryst. E*, **64** o360 (2007). USA
7. Choudhary M. I., **Yousuf S.**, Samreen, Ahmed S., Atta-ur-rahman, "New leishmanicidal physalins from *Physalis minima*", *Nat. Prod. Res.*, **21(10)** 877 (2007). UK
8. Yamin B. M., **Yousuf S***, Yousof M. S. M., Joushu R. H., "N-(2,4-dimethylphenylcarbamothioyl)-2-methylbenzamide", *Acta Cryst. E*, **64** o832 (2008). USA
9. Yamin B. M., **Yousuf S.**, Yousof M. S. M., Joushu R. H., "2-Methyl-N-(3-methylpyridine-2-yl)carbamothioyl)benzamide", *Acta Cryst. E*, **64** o833 (2008). USA
10. Yamin B. M., **Yousuf S***, Yousof M. S. M., Zakaria T. N. T. D., "(2-Methylbenzoyl)-3-methylthiourea", *Acta Cryst. E*, **64** o1227 (2008). USA
11. Koko W. S., Mesaik M. A., **Yousuf S.**, Choudhary M. I., 'In Vitro immunomodulatory properties of selected sudanese medicinal plants", *J. Ethnopharmacology.*, **118** 26, (2008). The Netherlands
12. Ashiq U., Jamal R. A., Tahir M. N., **Yousuf S***, Khan I. U., "4-Methoxybenzohydrazide", *Acta Cryst. E*, **65** o1551 (2009). USA
13. Owoeye O., **Yousuf S.**, Akhter M. N., Qamar K., Dar A., Farombi E O., Onwuka S., Choudhary M. I., "Another anticancer elemanolide from *Vernonia amygdalina* Del", *Int. J. Biol. Chem. Sci.*, **4(1)** 226 (2010). Australia
14. Choudhary M. I., Hussain S., **Yousuf S.**, Muddasar, Dar A., Atta-ur-Rahman, "Chlorinated and diepoxy withanolides from *Withania somnifera* and their cytotoxic effects against human cancer cell lines", *Phytochemistry*, **17(16)** 2205 (2010). UK
15. **Yousuf S***, Zafar S., Choudhary M. I., Ng S. W., "17 β -Hydroxy-17 α -(hydroxymethyl)estr-4-en-3-one", *Acta Cryst. E* **66** o2894 (2010). USA
16. **Yousuf S***, Latif A., Arfan M., Choudhary M. I., "1,2,4-Trimethoxy dibenzofuran-3-ol", *Acta Cryst. E*, **66** o3066 (2010). USA
17. Ali Q., **Yousuf S***, M. R. Shah, Ng S. W., "tert-Butyl 2-[4-(2-{4-[(tert-butoxycarbonyl)methoxy]-3-methylphenyl}-2-propyl)-2-methylphenoxy]-acetate", *Acta Cryst. E*, **66** o1750 (2010). USA
18. Ali Q., **Yousuf S***, M. R. Shah, Ng S. W., "Di-tert-butyl 2,2'-[(biphenyl-4,4'-diyl)dioxy]diacetate", *Acta Cryst. E*, **66** o1739 (2010). USA
19. K. Shah, **S. Yousuf***, Shah M. R., S. W. Ng, "Di-tert-butyl 2,2'-[9H-fluorene-9,9-diylbis(p-phenyleneoxy)]diacetate", *Acta Cryst. E*, **66** o1705 (2010). USA
20. **Yousuf S***, Ahmad R., Ali Z., Choudhary M. I., Ng S. W., "(20S)-20-Acetoxy-4-pregnene-3,16-dione from *Commiphora weightii*", *Acta Cryst. E*, **66** o3301 (2010). USA
21. Yousaf A., **Yousuf S***, Yu P., Nighat A., Ali M. K., "1-Oxo-2,3-dihydro-1-H-pyrrolizine-2,2-diyl)bis(methylene)dibenzoate", *Acta Cryst. E*, **67** 0172 (2011). USA

22. Musharraf S. G., Ali A., Ali R. A., **Yousuf S***, Atta-ur-Rahman, Choudhary M. I., "Analysis and development of structure-fragmentation relationships in withanolides using an electrospray ionization quadrupole time-of-flight tandem mass spectrometry hybrid instrument", *Rapid Commun. Mass Spectrom.*, **25** 104 (2011). UK
23. **Yousuf S.**, Kamdem R. S. T., Nagadjui B. T., Wafo P., Hoog-kun Fun, "3 α -Hydroxytriacalla-8,24-diene-21-oic acid", *Acta Cryst. E*, **67** o937-o938 (2011). USA
24. **Yousuf S.**, Kamdem R. S. T., Nagadjui B. T., Wafo P., Hoog-kun Fun, "A cocrystal of 3 α -Hydroxytriacalla-8,24-diene-21-oic acid and 3 β -flurotriacalla-7,24-diene-21-oic acid (0.897:0.103)", *Acta Cryst. E*, **67** o1015-o1016 (2011). USA
25. **Yousuf S.**, Johnson A. S., Kazmi S. A., Offiong O. E., Hoog-kun Fun, "3,5-Diamino-4H-1-1,2,4-triazol-1-ium(6-carboxylato)cuprate (II) trihydarte", *Acta Cryst. E*, **67** m509-m510 (2011). USA
26. **Yousuf S.**, Musharraf S. G., Khan I., Samiullah., Hoog-kun Fun, "Absolute configuration of (2S)-4-(4-hydroxyphenyl)butane-2-ol", *Acta Cryst. E*, **67** o952-o0960 (2011). USA
27. Sultana R., Hossain R., Adhikari A., Ali Z, **Yousuf S***, Choudhary M. I., Ali M. Y., Zaman M. S., "Drimane-type sesquiterpenes from *Polygonum hydropiper*", *Planta Medica*, **77(16)**, 1848-51 (2011) USA
28. **Yousuf S.**, Johnson A. S., Kazmi S. A., Hemamalini. M., Hoog-kun Fun, "3,5-Diamino-4H-1-1,2,4-triazol-1-ium hydroxonium bis (pyridine-2,6-dicarboxylato)Cobalt (II) pyridine-2,6-dicarboxylic acid monohydrate", *Acta Cryst. E* **67**, m1105-m1106 (2011). USA
29. Jamal R. A., Ashiq U., **Yousuf S***, Qurat-ul-Ain, "3-Amino-N₂-(2-oxo-2,3-dihydro-1H-indol-3-ylidene)benzohydrazide", *Acta Cryst. E*, **67** o2166- (2011). USA
30. Ashiq U., Jamal R. A., **Yousuf S***, "3,4,5-Trihydroxybenzohydrazide", *Acta Cryst. E*, **67** o2462-o2463 (2011). USA
31. Zeb. A., **Yousuf S***, "(E)-1-(1-(3-nitrophenyl)ethylidene)-2-O-tolylhydrazine", *Acta Cryst. E*, **67** o2801-o2802 (2011). USA
32. **Yousuf S.**, Musharraf S. G., Iqbal N., Adhikari A., Choudhary M. I., "3 α -Dimethylamino-20-(N-methylacetamido)pregn-5-ene", *Acta Cryst. E*, **67** o2918-o22920 (2011). USA
33. **Yousuf S***, Bibi M., Choudhary M. I., "21-Hydroxypregna-1,4-diene-3,20-dione", *Acta Cryst. E*, **67** o2122-o2124 (2011). USA
34. Ramsay S. T. K., Wafo P., **Yousuf S.**, Ali, Adhikari A., Rasheed S., Khan I. A., Ngadjui B. T., Hoong-Kun Fun, and Choudhary M. I., "Canarene: A triterpenoid with a unique carbon skeleton from *Canarium schweinfurthii*", *Org. Lett.*, **13 (20)**, 5492–5495 (2011). USA
35. Choudhary M. I., Alam M. S., Atta-ur-Rahman, **Yousuf S.**, Wu Yang-Chang, Lin An-Shen, and Shaheen F. "Pregnenolone derivatives as anticancer agents", *Steroids*, **76**, 1554–1559 (2011). Netherland
36. Aslam M., Anis I., **Yousuf S***, Afza N., Nelofar A., "5-Chloro-2-(4-nitrobenzylideneamino)phenyl)(phenyl)methanone", *Acta Cryst. E.*, **67** o3215-o03216 (2011). USA
37. Aslam M., Anis I., **Yousuf S***, Afza N., Nelofar A., "5-Chloro-2-(2-hydroxybenzylideneamino)phenyl)(phenyl)methanone", *Acta Cryst. E*, **67** o3442-o3443 (2011). USA
38. Jamal R. A., Ashiq U., **Yousuf S***. "(3Z)-3-Hydrazinylideneindoline-2-one", *Acta Cryst. E*, **67** o2576 (2011). USA

39. Choudhary M. I., Zafar S., **Yousuf S.**, Kayani H. F., Saifullah, Khan S., "Biotransformation of oral contraceptive ethynodiol diacetate and methyloestrenolone by cell suspension cultures of medicinal plants", *Chemistry Central Journal*, **6(1)**, 109 (2012). USA
40. Khan T. M., Bibi M., **Yousuf S.**, Qureshi I. H., Atta-ur-Rahman, Al-Majid A. M., Mesaik M. A., Khalid S., Sattar S., Atia-tul-Wahab, Choudhary M. I., "Synthesis of some potent immunomodulatory and anti-inflammatory metabolites by fungal transformation of anabolic steroid oxymetholone", *Chemistry Central Journal*, **6**, 153 (2012). USA
41. Atta-ur-Rahman., Haroone M. S., Tareen R. B., Mesaik M. A., Jan S., Abbaskhan A., Asif M., Gulzar T., Al-Majid A. M., **Yousuf S.**, Choudhary, M. I. M.I., "Secondry Metabolities of *Sophora mollis* subsp. griffithii (Stocks) Ali", *Phytochem. Lett.*, **5**, 613–616 (2012). UK
42. Elhassan O. M. G., **Yousuf S.**, Adhikari A., Rehman M. H., Khalid A., Omer H., Hoong-Kun Fun., Jahan H., Choudhary M. I., Yagi S., "Phytochemistry and antiglycation activity of *Aloe sinkatana* Reynolds", *Phytochem. Lett.*, **5**, 725–728 (2012). UK
43. Musharraf, S. G., Uddin J., Akhter M., Parvez M., Khan S., **Yousuf S.**, Khan S., Choudhary M. I., "Biotransformation of an antimalarial drug, artemether by plant and fungal cell cultures", *J. Molecular Catalysis B. Enzymatic*, **82** 80-85 (2012). UK
44. Firdous S., Ansari, N. H., Ng S. W., **Yousuf S***, Malik A., "Crystal structure of a novel furo-furan lactone from *Heliotropium eichwaldi*", *Z. Naturforsch.*, **67(B)** 269-271 (2012). UK
45. Hameed A., Anwar A., **Yousuf S.**, Khan K. M., Basha F. Z., "Tetra-*n*-butylammonium fluoride-mediated dimerization of (α -methylbenzylidene)malononitriles to form polyfunctional 5,6-dihydropyridines derivatives under solvent-free conditions", *Eur. J. Chem.*, **3(2)** 179-185 (2012). UK
46. Aslam M., Anis I., Afza N., Ibrahim M., **Yousuf S***, "17-(Pyrimidin-2-yl)-8,16-dioxo-17-azatetracyclo[7.7.1.0^{2,7}.0^{10,15}]heptadeca-2,4,6,10,12,14-hexaene", *Acta Cryst. E*, **68** o440 (2012). USA
47. Aslam M., Anis I., Afza N., Safdar M., **Yousuf S***, "{2-[(3-Bromobenzylidene)amino]-5-chlorophenyl}(phenyl)methanone", *Acta Cryst. E*, **68** o645 (2012). USA
48. **Yousuf S.**, Khan M., Fazal S., Butt N., Basha, F. Z., 5-(Prop-2-ynyl)-5*H*-dibenzo[*b,f*]azepine", *Acta Cryst. E*, **68** o1101 (2012). USA
49. Warad I., Alruwaili A., Al-Resayes S. I., Choudhary M. I., **Yousuf S***, "5,5-Dimethyl-2,2-bis(pyridin-2-yl)-1,3-diazinane", *Acta Cryst. E*, **68** o1786 (2012). USA
50. **Yousuf S***, Zeb. A., Basha, F. Z., "2-(2-Methyl-5-nitro-1*H*-imidazol-1-yl)-ethyl 4-fluorobenzoate", *Acta Cryst. E*, **68** o952 (2012). USA
51. Aslam M., Anis I., Afza N., Yasmeen S., **Yousuf S***, "{5-Choloro-2-[(4-cholorobenzylidene)-amino]phenyl}(phenyl)methanone", *Acta Cryst. E*, **68** o644 (2012). USA
52. Zeb. A., **Yousuf S***, Basha, F. Z., "2-(2-Methyl-5-nitro-1*H*-imidazol-1-yl)-ethyl 2-bromobenzoate", *Acta Cryst. E*, **68** o1218 (2012). USA
53. Aslam M., Anis I., Afza N., Hussain, M. T., **Yousuf S***, "2-[(2-Methoxybenzylidene)amino]phenol", *Acta Cryst. E*, **68** o1447 (2012). USA
54. **Yousuf S***, Arshad M., Butt, M. H., Saeed S., Basha, F. Z., "2-Azido-1-(4-fluorophenyl)ethanone", *Acta Cryst. E*, **68** o1268 (2012). USA
55. **Yousuf S***, Bano S., Choudhary M. I., "17 α -Acetoxy-11 β -hydroxy-6 α -methylpregn-4-ene-3,20-dione", *Acta Cryst. E*, **68** o2006 (2012). USA

56. Arshad M., **Yousuf S***, Butt, M. H., Saeed S., Basha, F. Z., “2-Azido-1(4-methylphenyl)ethanone”, *Acta Cryst. E*, **68** o1608 (2012). USA
57. **Yousuf S***, Arshad M., Butt, M. H., Saeed S., Basha, F. Z., “2-Azido-1(4-nitrophenyl)ethanone”, *Acta Cryst. E*, **68** o1952 (2012). USA
58. **Yousuf S***, Khan M., Fazal S., Butt M., Basha, F. Z., “5-(Prop-2-ynyl)-5*H*-dibenzo[b,f]azepine”, *Acta Cryst. E*, **68** o1101 (2012). USA
59. **Yousuf S***, Siddiqui H., Farooq R., Choudhary M. I., “*N*-(4-Methoxy-2-nitrophenyl)-*N*-(methylsulfonyl)methanesulfonamide”, *Acta Cryst. E*, **68** o2090 (2012). USA
60. **Yousuf S***, Younas S. M., Ambreen N., Khaild K. M., Miana G. A., “3,5a,9-Trimethyl-8-(2-phenylhydrazin-1-ylidene)-4,5,5a,9btetrahydro-3a*H*,8*H*-naphtho[1,2-*b*]furan-2(3*H*)-one”, *Acta Cryst. E*, **68** o2112 (2012). USA
61. **Yousuf S***, Younas S. M., Ambreen N., Khaild K. M., Miana G. A., “8-[(2-Hydroxyphenyl)imino]-3,5a,9-trimethyl-a,4,5,5a,8,9bhexahydronaphtho[1,2-*b*]furan-2(3*H*)-one”, *Acta Cryst. E*, **68** o2158 (2012). USA
62. Warad I., Aldwayyan, A. S., Al-Jekhedab F. M. Choudhary M. I., **Yousuf S.**, “[1,2-*Bis*(diphenylphosphanyl)ethane-*k*2*P*,*P*']dichloridopalladium(II) dimethyl sulfoxide monosolvate”, *Acta Cryst. E*, **68** m984-m985 (2012). USA
63. Ashiq U., Jamal R. A., Ismail H., Khaild K. M., **Yousuf S***, “3-(2-Ethyl-2-phenylhydrazin-1-ylidene)indoline-2-one”, *Acta Cryst. E*, **68** o3473 (2012). USA
64. **Yousuf S.**, Iqbal S., Ambreen N., Khaild K. M., “1-(3-Methoxyphenyl)-2-(phenylsulfonyl)ethan-1-one”, *Acta Cryst. E*, **68** o2562 (2012). USA
65. Syukri M., Baharudin., Taha M., Ismail N. H., Ali Shah S. A., **Yousuf S***, “*N'*-(*E*)-2-Hydroxy-5-methoxybenzyl-idene]-2-methoxybenzohydrazide”, *Acta Cryst. E*, **68** o3255 (2012). USA
66. **Yousuf S***, Siddiqui H., Farooq R., Choudhary M. I., “2-[3-(1,3-Benzothiazol-2-yl)-2,2-dimethylpropyl-2-methyl-2,3-dihydro-1,3-benzothiazole”, *Acta Cryst. E*, **68** o2349 (2012). USA
67. Taha M., Syukri M., Baharudin., Ismail N. H., Ali Shah S. A., **Yousuf S***, “*N'*-(*E*)-2,3-Dihydroxybenzylidene]-2-methoxybenzohydrazide”, *Acta Cryst. E*, **68** o3256 (2012). USA
68. Taha M., Naz H., Rahman A.A., Ismail N. H., **Yousuf S***, “(*E*)-4-methoxy-*N*-(3,4,5-trihydroxybenzyl-idene)benzohydrazide methanol monosolvate”, *Acta Cryst. E*, **68** o2846 (2012). USA
69. Taha M., Naz H., Rahman A. A., Ismail N. H., **Yousuf S***, “(*E*)-*N*-Dimethoxybenzylidene)-4-methoxy-benzohydrazide”, *Acta Cryst. E*, **68** o2780 (2012). USA
70. Taha M., Naz H., Rahman A. A., Ismail N. H., **Yousuf S***, “(*E*)-4-methoxy-*N*-[(pyridin-4-yl)methylidene]benzohydrazide monohydrate”, *Acta Cryst. E*, **68** o2778 (2012). USA
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| 4. | Obesity Treatment, M. Iqbal Choudhary, Yousf S. , Misha Siddiqui, and Madiha Mukhtar, US Patent Number 10,765,716 B2, Application No. 15/671,191, Date of Patent, September 08, 2020 | |
| 5. | Anti-obesity Effect of medicinal Plants (<i>Boroga Officinalis</i> Linn.) Extracts- A Strategy to Control the Epidemic of Metabolic Disorders, M. Iqbal Choudhary, Yousf S. , Misha Siddiqui, and Madiha Mukhtar, US-Patent No. 10,426,806 B1, Application No. 16/007,130, Patent Date: 10/01/2019. | USA |

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| 6. | Alpha-glucosidase Inhibitors, Al-Majid A. M., Islam M. S., Barakat A., Choudahry M. I., Yousuf S. , US Patent Application Number 9802894B2, Date of Patent Oct. 31, 2017 . | USA |
| 7. | The Reversal of Insulin Resistance and Dyslipidemia in High-fat Diet-Induced Obese Rat Models by <i>Physalis minima</i> L. Extract., Yousf S. , Noshin R., and M. Iqbal Choudhary, US Patent Application Number 16/02202626 A1, Pub. Date of Patent August 04, 2016 . | USA |
| 8. | Quinazolines as β -Glucuronidase Novel Inhibitors, M. I. Choudhary, K. M. Khan, N. N. Shaikh, S. M. Saad, S. Yousuf , and Atta-ur-Rahman, US Patent No. US 2014/0256754 A1. Pub. Date of Patent September 11, 2014 . | USA |
| 9. | New Formulations Against Cutaneous Leishmaniasis, Atta-ur-Rahman, M. Choudhary M. I., Yousuf S. , Samreen, Soomro F. R., Perveen S., US Patent 8,287,921 B1, Date of Patent Oct. 16, 2012 . | USA |
| 10. | " Diethyl Ammonium Salts of Phenyl-Substituted Thiobarbituric Acid as Anti-Diabetic Agents ", Al-Majid A. M., Islam M. S., Barakat A., Choudahry M. I., Yousuf S. , US Patent Application Number 15147878, Application Docket Number 32693.79, Date of filing: 05 May, 2016 . | USA |

E. NATIONAL PATENTS GRANTED / FILED

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| 1. | New Urease Inhibiting Co-Crystals of Coumarine-3-carboxylic acid, Sammer Yousuf , M. Shahbaz, M. Amjad, M. Iqbal Choudhary; Pakistan Patent Application No. 268/2022, Filing Date: 21/04/ 2022 . | Pakistan |
| 2. | 1-Dehydro-11 α -hydroxy-canrenone for Treating ER+ Breast Cancers; Atia-tul-Wahab, M. Iqbal Choudhary, Ambreen Aziz, Nimra Naveed Shaikh, Sammer Yousuf , and Atta-ur-Rahman; Pakistan Patent Application No. 608/2021, Filing Date: 20/08/ 2021 | Pakistan |

E. Lectures in International Conferencs / Workshops

- Lecture as resource person in “International Workshop entitled, “Identification of New Lead Compounds and Diagnostic Tools for Leishmaniasis: Concepts, Approaches, and Capacity Building”, held at the University of Nairobi, Kenya, February 22-24, 2023, entitled, “Co-crystallization to accelerate our discovery and understanding of anti-leishmanials”.
- Lecture in one-day workshop Role of Co-crystalization to improve biological activities, School of Chemical Sciences and Food Technology, Faculty of Science and Technology, Universiti Kebangsaan, Malaysia 28th July, to 30th July 2022, entitled, “Role of Crystal Engineering Approach to Manipulate Biological and Physical Properties of Active Pharamceutical Agents”.
- Lecture in Chemistry Department, Durham University, UK, 6th July, 2022, entitled, “An Overview of Recent Outbreak of Cutaneous Leishmaniasis in Pakistan and use of *Physalis minima* based topical formulation”.
- Lecture delivered in 1st international Conference on Applied Physics and Engineering 2021 (ICAPE2021), NED University of Engineering and Technology, Karachi, Pakistan, September 16-17, 2021, entitled, “Women in Physical Sciences”.
- Invited Lecture in Virtual Conference on Zoom CEFMC-2020, Crystal Engineering: From Molecule to Crystal, June 19-20, 2020, “Biological Activities Tuning of Active Pharmaceutical Ingredients *via* Co-crystallization”.
- Lecture in 16th Conference of the Asian Crystallographic Association (AsCA 2019), UTown, National University Singapore, December 17- 20, 2019, “Crystal Engineering of Natural Products– An Efficient Approach Towards Enhanced Biological Activities”.
- Lecture in Chemistry Department, Durham University, UK, 15th August, 2019, entitled, “Role of Crystal Engineering Approach To Manipulate Anti-leishmanial Activities of Natural Products”.

- Lecture in 5th Science Technology Exchange Program on Challenges of Communicable- and Non-Communicable Diseases (STEP-5), International Center for Chemical and Biological Sciences, University of Karachi, Karachi, Pakistan, February 27 to March 02, 2019, entitled, “Crystal Engineering Approach To obtain Co-crystals with Improved Anti-leishmanial Activities”.
- Asian Symposium on medicinal Plants, Spices and Other Natural Products XVI, December 12-14, 2018, organized by the Ministry of Science, Technology and Research, and Department of Chemistry, University of Sri Jayewardenepura, Colombo, Sri Lanka, lecture entitled, “Crystal Engineering of Natural products– An Efficient Approach Towards Enhanced Biological Activities”.
- 2nd South East Asian Conference on Crystal Engineering (SEACCE-2), August 6-9, 2018, organized by Research Centre for Crystalline Materials (RCCM), School of Science and Technology, Sunway University, invited lecture entitled, “Crystallization as Crystal Engineering Approach To obtain Co-crystals with Improved Biological Activities”.
- SKLEOC-ICCBS Chemistry Forum meeting, January 2-6, 2018, organized by the State Key Laboratory of Elemento-organic Chemistry (SKLEOC), Nankai University, Tianjin, China lecture entitled, “Introduction of Ongoing Research Activities at the Crystallography Laboratory of the ICCBS” was delivered to explore possibilities of collaboration between two institutions.
- 1st South East Asia Conference on Crystal Engineering (SEACCE), September 5-7, 2016, organized by Department of Chemistry, Sri Jayewardenepura University, Sri Lanka and International Union of Crystallography, invited lecture entitled, “Co-Crystallization- A Crystal Engineering Approach Towards Enhanced Biological Activities”.
- 5th International Symposium-cum- Training Course on Molecular Medicine and Drug Research, January 12-15, 2015, organized by International Center for chemical and Biological sciences, University of Karachi. Session lecture entitled, “Co-crystallization and Biotransformational Studies of Bioactive Natural Products- Strategies towards Enhanced Bioactivities”.
- International Pharmacy Conference on “Emerging Fields of Pharmacy”, September 19-21, 2014, organized by Ziauddin Medical University, Department of Pharmacy, Session lecture entitled, “A Nature’s Remedy Based Treatment of Cutaneous Leishmaniasis”.
- IYCr South Asia Regional Summit on Vistas in Structural Chemistry, April 28-30, 2014, organized by International Center for chemical and Biological sciences, University of Karachi. Session lecture entitled “Discovery of Anti-Leishmanial Leads from Natural Leads”.
- Two days Workshop related to Single-Crystal X-ray Diffraction Technique, December 19-20, 2013, organized by the Atta-ur-Rahman Institute for Natural Product Discovery (RiND), University Technology Mara (UiTM), lecture entitled, “Fundamentals of Single-Crystal X-ray Diffraction Techniques”.
- Two days Workshop related to Single-Crystal X-ray Diffraction Technique, December 19-20, 2013, organized by the Atta-ur-Rahman Institute for Natural Product Discovery (RiND), University Technology Mara (UiTM), lecture entitled, “How to Grow a Good Quality Single-Crystal?”.
- 14th Asian Symposium on Medicinal Plants, Spices and Other Natural Products (ASOMPS-XIV)”, 9-12 December, 2013, Organized by the H.E.J. Research Institute of Chemistry, International Center for chemical and Biological sciences, University of Karachi. Lecture entitled, “Biotransformation of Anabolic Steroid Oxymetholone to obtain some Potent Immunomodulatory and Anti-inflammatory Metabolites”.
- 4th International Symposium-cum-Training Course on Molecular Medicine and Drug Research, January 7-10, 2013, Organized by the Dr. Panjwani Center for Molecular Medicine and Drug Research, University of Karachi, entitled, “New Formulation Based on *Physalis minima* to treat Cutaneous Leishmaniasis”.
- 13th International Symposium of Natural Product Chemistry, November 22-25, 2012, Organized by the International Center for Chemical and Biological Sciences, H. E. J. research institute of chemistry, University of Karachi, Pakistan, entitled, “Expanding Chemical Space- Recent Examples of Structure Determination of New and Novel Natural Products by Single-Crystal X-Ray Diffraction Studies”.

- AFRO ASIA Workshop on Advanced Topics in Chemistry, 13 TO 17TH June 2011, Organized by the TWAS Regional Office for Central and South Asia (TWAS-ROCASSA) at: Jawaharlal Nehru Centre for Advanced Scientific Research, Jakkur, Bangalore – 560 064, India, entitled, “Isolation, Structure Elucidation, X-ray Diffraction and Anti-leishmanial Studies of Bioactive Compounds”.
- International Chemistry Conference and its Role in Science, 4-7 January, 2011, Organized by the Jinnah University for Women, Karachi, entitled, “Bio-transformational Structure Modification and Single-Crystal X-Ray Diffraction Studies of Bioactive Physalins H”.
- 12th International Symposium of Natural Product Chemistry, entitled, November 22-25, 2010, Organized by the International Center for Chemical and Biological Sciences, H. E. J. research institute of chemistry, University of Karachi, Pakistan, entitled, “The Single-Crystal X-Ray Diffraction and Biotransformation Studies of Oxymetholone”.
- 3rd Bi-National Symposium France-Pakistan, Besançon, 15-18 of July, 2010, France, entitled, “Biotransformation and Single-Crystal X-Ray Diffraction Studies on Antileishmanial Physalins H”.
- 11th International Symposium on Natural Product Chemistry, International Center for Chemical and Biological Sciences, H. E. J. Research Institute of Chemistry, University of Karachi, Pakistan, in October 2008, entitled, “Antileishmanial Physalins from *Physalis minima*”.

F. Research Projects (International)

S. No	Project Title	Funding Agency	Amount	Duration / Status	In Capacity
1	Synthesis and <i>in vitro</i> Study of Therapeutic Potential, and Cytotoxicity of Novel Co-crystals of Natural Products Against Multidrug-resistant Strains of Leishmania	NTD Global Network- Equipment Fund	£ 10,000	2019-2022 / Completed	P.I.
2	Co-crystallization of Amphotericin B- <i>An Approach to Improve Solubility, Safety and Anti-leishmanial Activity</i>	NTD Global Network- Industrial / Business engagement Vouchers	£ 10,000	2021-2023 / On going	P.I.
3	Synthesis and <i>in vitro</i> Study of Therapeutic Potential, and Cytotoxicity of Novel Co-crystals of Anti-leishmanial Natural Products	NTD Global Network- Equipment Fund	€ 9,887	2019-2022 / Completed	P.I.
4	Identification of New and Novel Bioactive Leads of Natural and Synthetic Origin Against <i>Leishmania major</i> and <i>Leishmanin tropica in Vitro</i> and <i>in Vivo</i>	NTD Global Network- Research Grant	€ 30,000	2019-2022 / Completed	P.I.
4	Pre-clinical Studies for the Development of <i>Physalis minima</i> Based Topical Formulation - Treatment of Cutaneous Leishmaniasis	NTD Global Network- Industrial / Business engagement Vouchers	£ 10,000	2019-2023 / On-going	Co-P.I.
5	Structural and Biological Studies on New Anabolic Steroids Obtained by Bio-Transformations	OPCW	€ 20,000	2014-2016 / Completed	P.I.

G. Research Projects (National)

S. No	Project Title	Funding Agency	Amount (Rs.)	Duration / Status	In Capacity
1.	Co-crystallization of Anti-leishmanial Drugs (Amphotericin B and Miltefosine)– An Approach Towards Improved Treatment of Prevalent Neglected Tropical Disease (Leishmaniasis) in Pakistan	HEC	8,160,000 million	Project was approved in Feb. 2022 however no funds has tranfered yet to start	P.I.
2.	Structural and functional studies on metabolites produced by fungal transformation of anti-inflammatory fluorinated steroidal drugs- An efficient approach towards anti-inflammatory drug discovery	PSF	1,447,710 million	2019-2021 Completed	P.I.
3.	Structural Studies of New Inhibitors of Urease Enzyme-An Approach Towards the Treatment of Gastric Ulcer, Urolitheasis and Other Complications.	HEC	0.974439 million	2015-2018 / Completed	P.I.
4.	Structure-Activity Relationship Studies of New Anti-oxidants as Disease Preventing Agents	HEC	4.386 million	2014-2019 / Completed	P.I.
5.	Anti-obesity Effect of Medicinal Plants Extracts-A Strategy to Control the Epidemic of Metabolic Disorders	HEC	6.674753 million	2014-2016 / Completed	Co-P.I.
6.	Identification of Small Molecular Agonists against G-Protein Coupled Receptors (GPCRs): Opportunities for Cancer Prevention and Treatment	PSF	2.00 million	2017-2018 / Completed	Co-P.I.
7.	Study of Molecular Structures and Drugability Potential of New Inhibitors of β -Glucuronidase by Single-crystal X-Ray Diffraction and NMR Spectroscopic Techniques	PAS	1.994 million	Two years / Completed	Co-P.I.
8.	Studies on Reverting Insulin Resistance (IGT and IFG) by Employing Natural Products for the Prevention of the On-set of Metabolic syndrome	HEC	1.702 million	Two years / Completed	Co-P.I.
9.	Development of Nutraceuticals from the Medicinally Important Plants and Herbs of Pakistan	PAS	0.5 million	2013-2016 / Completed	P.I.

H. Workshop/ Courses Organized / attended as Resource Person

- Co-organized “International Workshop entitled, “Identification of New Lead Compounds and Diagnostic Tools for Leishmaniasis: Concepts, Approaches, and Capacity Building”, held at the University of Nairobi, Kenya, during February 22-24, 2023, jointly organized by Durham University, COMSTECH, ICCBS, and University of Nairobi (In capacity of coordinator both from ICCBS and COMSTECH) (In capacity of coordinator / facilitator from the ICCBS).

- Organized “**International Symposium on Excellence in Science (ISES)**”, on **September 22, 2022** to commemorate the 80th birthday of one of the most distinguished scientist of the world, **Prof. Dr. Atta-ur-Rahman, FRS** (Patron-in-Chief ICCBS, and Ex-Coordinator General COMSTECH) at the ICCBS, Karachi, Pakistan (In capacity of coordinator).
- Organized online course entitled, “**Single Crystal X-Ray Diffraction Techniques- Basic Principles**”, by Prof. Dr. Maria Cristina Nonato. at the International Center for Chemical and Biological Sciences, Feb. 3 – 26, 2021. (In capacity of coordinator / course Facilitator)
- Organized online certificate course entitled, “**Basic Plant Tissue Culture Techniques**”, Jointly Organized by the International Center for Chemical and Biological Sciences, COMSTECH, Secretariat, Islamabad, and Pakistan Biotechnology Information Center (PABIC) (Karachi Chapter), August 25, 2021. (In capacity of coordinator / course. Facilitator)
- Organized online certificate course entitled, “**Micropropagation of Quality Banana Plants for Commercial Purpose**”, Jointly Organized by the International Center for Chemical and Biological Sciences, COMSTECH, Secretariat, Islamabad, and Pakistan Biotechnology Information Center (PABIC) (Karachi Chapter), November 25, 2021. (In capacity of coordinator / course. Facilitator)
- Organizer of online course entitled, “Symmetry operations for crystallographers”, by Prof. Dr. Richard C. Garratt, jointly hold by the International Center for Chemical and Biological Sciences, and COMSTECH, Oct. 13 – Dec. 16, 2020.
- Organizer and resource person of the International Workshop entitled, “New Anti-leishmanial Leads from Natural Sources: Concepts and Approaches”, Organized by the Dr. Panjwani Center for Molecular Medicine and Drug Research (International Center for Chemical and Biological Sciences, University of Karachi, Karachi, Pakistan) in collaboration with NTD, A Global Network for Neglected Tropical Diseases, November 8 - 9, 2019.
- Organizer and resource person of the of the 3rd International Workshop on X-Ray Crystallography in Structural Biology, jointly organized by the Dr. Panjwani Center for Molecular medicine and Drug Research, International Center for Chemical and Biological Sciences (ICCBS), Karachi, International Union of Crystallography, and X-ray Diffraction Users Group of Pakistan (XRD-PAK) under the auspices of National Committee of Crystallography, ICCBS, Karachi, Pakistan, October 8-10, 2018.
- Organizer and resource person of the IUCr-UNESCO Open lab in Pakistan, jointly organized by International Center for chemical and Biological sciences, University of Karachi, International Union of Crystallography and UNESCO, ICCBS, Karachi, Pakistan, April 28 May 09 2014.
- Resource person of the Two days Workshop related to Single-Crystal X-ray Diffraction Technique, Organized by the Atta-ur-Rahman Institute for Natural Product Discovery (RiND), University Technology Mara (UiTM), Malaysia, at Atta-ur-Rahman Institute for Natural Product Discovery (RiND), University Technology Mara (UiTM), Puncak Alam Campus, 42300 Bandar Puncak Alam, Selangor D. E. Malaysia. December 19-20, 2013.
- Resource person of the National workshop on crystallography, single crystal X-Ray determination held at G. C. University Lahore, Pakistan, in August 2008.

I. M. Phil. / Ph. D. STUDENTS

S. #.	Student	Degree (Status)	Title of the Thesis
1.	Ejaz Hussain	M. Phil. (Degree awarded in 2016)	Study of three-dimensional structures of natural and synthetic heterocyclic compounds by using single-crystal X-ray diffraction technique
2.	Dr. Huma Bano	Ph. D. (Degree awarded in 2017)	Structural and Conformational Studies on Enzyme Inhibitors by Using Single-Crystal X-Ray Diffraction Techniques
3.	Ms. Syeda Saima Fatima	M. Phil. (Degree awarded in 2017)	Structural and Functional Studies on Crystals of Biologically Active Natural and Synthetic Compounds
4.	Ms. Sadaf Siddiqui	M. Phil. (Degree awarded in 2017)	Study of crystal structure and intra- and inter-molecular interactions in natural and synthetic compounds using single-crystal X-ray diffraction techniques

5.	Ms. Urooj Gul	M. Phil. (Degree awarded in 2017)	Synthesis of low dimensional carbon nanoparticles from natural and synthetic sources and their analytical applications
6.	Mr. Rajesh Kumar	M. Phil. (Degree awarded in 2018)	Structural Determination on Biologically Active Heterocyclic Compounds by Using Single-Crystal X-ray Diffraction Technique, and Study of Inter- and Intra-Molecular Interactions by Using Hirshfeld Surface Analysis
7.	Ms. Ammara Shahid	M. Phil. (Degree awarded in 2018)	Study of molecular and physical properties of heterocyclic compounds using high resolution X-rays diffraction and NMR spectroscopy
8.	Mr. Sana Ullah	M. Phil. (Degree awarded in 2019)	Study of three dimensional structures and inter- and intra-molecular interactions of steroidal compounds by using single crystal X-ray diffraction techniques, and Hirshfeld surface analysis
9.	Ms. Sidra Akhter	M. Phil. (Degree awarded in 2019)	Synthesis of bioactive heterocyclic compounds and their metal complexes, and elucidation of their structures by single-crystal X-ray diffraction and other spectroscopic techniques
10.	Ms. Urooj	M. Phil. (Degree awarded in 2019)	Conformational and configurational analysis of biologically active compounds and their co-crystals by using Single-Crystal X-Ray Diffraction Techniques
11.	Ms. Rabia Fatima	M. Phil. (Degree awarded in 2019)	Studies of three-dimensional structural features of bioactive small organic molecules by using single-crystal X-ray diffraction techniques, and study of role of inter- and intra- molecular interactions toward crystal stability by using Hirshfeld surface analysis
12.	Ms. Nida Tabbassum	M. Phil. (Degree awarded in 2020)	Study of structural and physical properties of heterocyclic compounds by using single-crystal X-ray diffraction techniques
13.	Mr. Muhammad Shahbaz	M. Phil. (Thesis submitted in 2020)	Structural, functional and co-Crystallization studies on anti-oxidant natural and synthetic compounds
14.	Ms. Memoona Bibi	M. Phil. degree awarded in 2022	Structural Studies on Bioactive Natural Products by Using single-crystal X-ray diffraction techniques Under Various Crystallization and Temperature Techniques
15.	Mr. Israr Ali	M. Phil. degree awarded in 2022	Study of structures and intra- and inter- molecular interactions of anti-inflammatory compounds by using single-crystal X-ray diffraction techniques
16.	Mr. Muhammad Shahbaz	M. Phil. degree awarded in 2022	Structural, Functional and Co-Crystallization Studies on Anti-Oxidant Natural and Synthetic Compounds
17.	Ms. Nabeela Kauser	M. Phil. Thesis Submitted	Qualitative And Quantitative Analysis of Contribution Of Inter and Intra Molecular Interaction Towards The Stability of Crystal structure Of Heterocyclic And Aromatic Molecules By Using X-ray Diffraction Data
18.	Mr. Ghulam Murtaza	M. Phil. Thesis Submitted	Study of three dimensional structures and structure-activity relationship of bioactive heterocyclic compounds and their co-crystals by using single-crystal X-ray diffraction techniques
19.	Mr. Rajesh Kumar	Ph. D. Thesis (writing)	Synthesis, Characterization and Detailed Interaction Studies of Metal Complexes, Based on Single-Crystal X-Ray Diffraction Techniques, and Hirshfeld Surface Analysis
20.	Ms. Urooj	Ph. D. Work going on	Synthesis of New Anti-leishmanial Leads via Co-crystallization of Anti-parasitic Drugs and Evaluation of their Anti- parasitic Potential

21.	Ms. Rabia Fatima	Ph. D. work going on	Synthesis of metal complexes and co-crystals of anti-parasitic compounds and drugs and study of their structural and biological properties.
22.	Mr. Muhammad Shabaz	Ph. D. Work in progress	Synthesis of Derivatives of Selected Anti-Parasitic Drugs, and Study of their Single-Crystal X-Ray Diffraction Structures and Biological Activates

I. Training of Foreign Students, and Scientists

The following foreign scientists and students have successfully completed a part of their trainings on natural products or anti-leishmanial studies:

S. #	Name	Institute/University	Country	Duration	Area of research
1.	Mr. Jibrel Abdulkadir Emam	Addis Ababa University, Addis Ababa ,	Ethiopia	21 Dec. 2019 to 03-10-2020	Natural products
2.	Douanla Djimeli Pascal	The University of Yaounde	Cameron	7 Oct. 2020 to 21 April 2021	Natural Products Chemistry
3	Ms. Nadine-Phalone Tinguiep Tchapnda	Department of Organic Chemistry, Faculty of Sciences University of Yaoundé 1 P.O. Box 812 Yaounde	Cameron	9 March 2021 to 27 August 2021	Natural Products Chemistry
4	Sadiq Ismail A. Shina	The Federal University Dutse	Nigeria	18 October 2021 to 18 March 2022	Natural Products Chemistry
5	Tauno-Boma Odinga	Department of Biochemistry, Faculty of Science Rivers State University	Nigeria	March, 2022-August, 2022	Natural Products Chemistry
6	Njateng Guy Sedar Singor	Department of Biochemistry, Université de	Cameroon	2 May 2022 to 22 October	Natural Products Chemistry

		Dschang		2022	
7	Douanla Djimeli Pascal	The University of Yaounde	Cameron	December 2022 to date	Natural Products Chemistry
8	Ms. Amona Hammad Abdallah Atia	Medicinal and Armoatic Pants and Traditonal Medicine Insituite (MAPTRI), National Cneter for Resaerch, Khartoom	Sudan	January 2023, to date	Natural Products Chemistry and Anti-leishmanial cellular assays (promastigtes and amastigotes)
9	Ms. Amona Ali Abdelrahim Alshafi	Medicinal and Armoatic Pants and Traditonal Medicine Insituite (MAPTRI), National Cneter for Resaerch, Khartoom	Sudan	January 2023, to date	Anti-leishmanial cellular assay (amastigotes)
10	Ms. Fouzia Ali Adam	Addis Ababa University	Ethiopia	February 21, 2023 to date	Natural Products Chemistry and Anti-leishmanial cellular assays (promastigtes and amastigotes)