

Dr. ZAHID ULLAH
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Research Interests

The goals of my research program are to characterize the plant biodiversity (systematics and phylogeny) of grasses (*Poaceae*), sedges (*Cyperaceae*) and other flowering plants of temperate and alpine region of Pakistan. I combine work in the field, herbarium and DNA laboratory to characterize morphological and molecular diversity in these plant groups, and to reconstruct their evolutionary history, and to generate a DNA barcode library for accurate identification. I regularly conduct field work across Hindukush, Himalayas and Karakorum ranges and have made some 7,000 plant collections.

Education

- Ph.D in Botany (Plant Systematics and Biodiversity): Quaid-i-Azam University Islamabad, Pakistan (2014)
- M.Phil (Plant Sciences): Quaid-i-Azam University Islamabad, Pakistan (2009)
- M.Sc (Botany): University of Malakand, Pakistan (2005)
- B.Sc (Bot, Zoo, Chem): University of Peshawar Pakistan (2002)

Present Position

- Working as Assistant Professor (BPS-19) at the Centre for Plant sciences and Biodiversity, University of Swat, KP, Pakistan since August 31, 2015 to date.
- Assistant Professor of Botany (BPS-19) on contract, at the Centre for Plant sciences and Biodiversity, University of Swat, KP, Pakistan July 06, 2015 to August 31, 2015.
- Assistant Professor IPFP at the Centre for Plant sciences and Biodiversity, University of Swat, KP, Pakistan, July 03, 2014 to July 04, 2015.
- Lecturer in Botany (BPS-17), Federal Directorate of Education Islamabad 13th May 2009 to 14th February 2014.

Experience and additional relevant responsibilities

- Member Board of Studies, Center for Plant Sciences and Biodiversity, University of Swat
- Member Board of Studies, Center for Biotechnology and Microbiology, University of Swat
- In-charge Botanical Garden University of Swat
- Herbarium Curator University of Swat
- Staff Proctor CPS and B, UoS.
- Focal person SAR CPSB UoS.
- Member Departmental Purchase Committee CPS and B.
- Member Departmental Semester Committee CPSB.
- Semester Coordinator of MSc Botany Program

Research specialties

- Plant Systematics: Taxonomy, Phylogenetics and Evolution, DNA barcoding
- Grasses (*Poaceae*), Sedges (*Cyperaceae*) and (*Fabaceae*)
- Temperate and Alpine flora, Flora of Swat
- Studies on Alien invasive flora
- Phytogeography
- Phytosociology and vegetation analysis
- Biodiversity and Conservation

Research Techniques

- Plant Identification, particularly flora of the higher altitudes of Northern Pakistan
- Morphometrics, anatomy, microtomy, palynological techniques and scanning electron microscopy
- Molecular techniques including DNA extraction, gel electrophoresis, PCR amplification, DNA sequencing
- Analysis of DNA sequence data
- Reconstructing phylogenetic trees using Maximum Parsimony (MP), Maximum Likelihood (ML) and Neighbor Joining methods
- DNA Barcoding techniques based on matK and rbcL genes
- Use of PC-ORD, MEGA, PAUP and GIS software for ecological, phylogenetic and phytogeographic purposes
- Statistical analysis using Statistica, Graph pad Prism,
- Herbarium management & Botanic Garden Establishment

International Experience

- Six month fellowship as PhD Research Scholar at Institute of Molecular Plant Sciences University of Edinburgh, UK and the Royal Botanic Gardens Edinburgh, United Kingdom

Thesis/Dissertation

- **Ph. D Thesis:**
❖ *Systematics and Phytogeography of Temperate and Alpine Poales s.l from Northern Pakistan*
- ❖ **M. Phil Thesis:**
❖ *Systematic studies of the Grasses of Swat, Pakistan*
- ❖ **M. Sc Thesis:**
❖ *Phytosociological studies on moist temperate forests of Miandam Swat, Pakistan*

Scholarships Availed

- IRSIP Scholarship for Six Months to Institute of Molecular Plant Sciences, University of Edinburgh, Scotland UK.
- HEC Indigenous 5000 Fellowship for PhD
- QAU merit scholarship in MPhil

Research Projects

- HEC NRPUR research project on “DNA Barcoding and phylogenetics of the grasses (Poaceae) of Pakistan” worth 5.3 million PKR. June 2018-June 2021. Project No. NRPUR-6932
- BIFA- GBIF research grant for “Digitization of Swat University Herbarium” in collaboration with Quaid-i-azam University Islamabad. 20,000 Euros.
- Awarded Start-up Research Grant from HEC Pakistan worth 0.5 million PKR. The title of the project is “Systematic and evolutionary implications of leaf anatomical and pollen morphological features in Sedges (Cyperaceae) from district Swat Pakistan”.

Research Students Supervised

- MSc Students

Name	Research Title	Session
Faridullah	Ecological and Taxonomic studies of Morchella	2012-2014
Sobia Bibi	Pollen morphology of some plants of Tehsil Dargai	2012-2014
Zainab Bibi	Palynology of Summer flora of Odigram and surrounding areas	2012-2014
Akbar Zeb	Quantitative ethnobotany of Buner	2013-2015
Ihsanullah	Quantitative studies on medicinal plants of Mamund tehsil Bajaur Agency	2013-2015
Jalal Udin	Quantification of Cultural values of the flora of Garhi Usmani Khel Area Dargai, Malakand	2013-2015

Muhammad Younus	Systematic studies in Vicia L. Fabaceae from Swat Pakistan	2014-2016
Rahman Ali Husna Ali Shah	Fuel wood utilization pattern in Biha Valley	2015-2017
Hira Khan Jameel Khan	The alien flora of Kanju Town	2015-2017
Sadaf Gul Shabnam Bibi	Palynology and leaf anatomy of Vicia.	2015-2017
Shujat Ali Sidra Bibi	Taxonomic studies in Rosaceae of District Swat	2015-2017
Nasibullah Shahid Hussain	Quantitative ethnobotany of Tehsil Khal Dir Lower	2016-2018
Ikramullah M. Nawaz	Medicinal flora of Tehsil Puran Shangla	2016-2018
Shawkat Ali Usman Ali	Indigenous knowledge of medicinal folk recipes among communities in Union council Arkot Matta Swat	2016-2018
Hussain Ahmad Adil Khan	Molecular Systematics of the genus Ficus from Pakistan.	2017-19
Hareem Farman Sara Ihsan	DNA Barcoding of the tribe Poeae (Poaceae) of Pakistan	2017-19
Mussarat Bibi Farida	DNA barcoding of the tribe Paniceae from Pakistan	2017-19
Muhammad Jan	Indigenous plant based recipes practiced by the local population of Gabaray valley, Bajour Pakistan	2017-19

BS Research Students

Shahzada Azizullah	Leaf epidermal anatomy of Lamiaceae	2011-2015
Asma Waqas	Leaf epidermal anatomy in Brassicaceae	2011-2015
Nasar Khan	Palynology of Brassicaceae	2011-2015
Ruqya Naz	Indigenous knowledge of Women specific diseases	2013-2017
Shifa Bibi	Morphometric studies in complex genus Euphorbia	2013-2017
Riaz Ahmad	Ethnomedicinal recipies of Manglawar and adjoining areas	2013-2017
Aftab Ahmad Khan Aminullah	Phytosociological studies on Jarugo valley	2014-2018
Fazal Rabbi	Morphometric studies of Angiosperm flora of Kanju Town	2014-2018
Sana Bibi	Indigenous recipes used for curing women specific diseases in Charbagh area Swat Pakistan	2014-2018
Arshad Ali Hamidullah	Medicinal plant recipes and quantitative analysis of the medicinal flora of Shin and Fatehpur region	2014-2018
Hameedullah Shamsul Islam	DNA Barcoding studies in Eragrostis Poaceae	In progress
Rahim Ullah Inamullah	Trade potential and socioeconomic aspects of wild edible fruits and vegetables sold in local markets of Swat Pakistan	2015-19
Hameed Ullah and Shamsul Islam	DNA barcoding and molecular phylogeny of the Avenae Poaceae from Pakistan	2015-19
Muhammad Zeb and Abuzar Khan	Systematic studies of the genus Lathyrus from Northern Pakistan	2015-19

M.PHIL and PhD Students

Nasir Ali	Systematics studies of sedges Cyperaceae from Swat Pakistan	Completed
Anwar Ali	The alien flora of Swat Pakistan	Completed
Saad Malook	Quantitative Ethnobotany of Gurnai Bahrain Swat	Completed
Saddiqur Rehman PhD	Ethnobotany of district Buner	In progress
Nasir Ali	DNA Barcoding and molecular phylogeny of Pakistani Grasses Poaceae.	In progress

PhD		
Fazli Rahman PhD	Taxonomic revision and molecular phylogenetic studies in <i>Nepeta</i> Lamiaceae from Pakistan	in progress
Fatima	Biogenic synthesis of Silver nanoparticles through <i>Hieracium candicans</i> an antihypertensive plant	In progress
Sher Muhammad Khan	Environmental impact assessment of invasive <i>Parthenium hysterophorus</i> and <i>Silybum marianum</i> in Malakand division.	In progress
Abdul Wahid	Assessment of <i>Verbesena encelioides</i> an invasive weed using IUCN criteria	In progress
Irfanul Haq	Legume wild relatives: distribution, ecology and taxonomic diversity	In progress

Publications

1. Amjad Ur Rahman, Shujaul Mulk Khan, Zafeer Saqib , **Zahid Ullah**, Zeeshan Ahmad, Semih Ekerchin, Abdul Samad Mumtaz and Habib Ahmad. (2020). Diversity and Abundance of climbers in relation to their hosts and elevation in The Monsoon Forests of Murree in the Himalayas. Pak. J. Bot., 52(2): 601-612, 2020. DOI: [http://dx.doi.org/10.30848/PJB2020-2\(17\)](http://dx.doi.org/10.30848/PJB2020-2(17)).
2. Zaheer Abbas, Shujaul Mulk Khan, Jan Alam, Zainul Abideen and **Zahid Ullah**. (2019). Plant communities and anthro-po-natural threats in the Shigar valley, (Central Karakorum) Baltistan-Pakistan. DOI:10.30848/PJB2020-3(5). IF. 0.84
3. M. Abdul Aziz, Arshad M. Abbasi, **Zahid Ullah** and Andrea Pieroni. (2020). Shared but Threatened: The Heritage of Wild Food Plant Gathering among Different Linguistic and Religious Groups in the Ishkoman and Yasin Valleys, North Pakistan. *Foods* 2020, 9(5), 601; <https://doi.org/10.3390/foods9050601> IF. 4.192
4. Mary Barkworth, Mushtaq Ahmad, Mudassir Asrar, Raza Bhatti, Neil Cobb, Lubna Fareed, Shahid Jamil, Shakeel Khaskheli, Rabia Memon, Abdur Rashid, Amir Sultan, **Zahid Ullah**. (2019). Developing Digital Botanical Resources for Pakistan. *Biodiversity Information Science and Standards* 3: e35885. doi: 10.3897/biss.3.35885
5. Ahmad Ali, **Zahid Ullah**, Naveed Alam, S. M. Saqlan Naqvi, Muhammad Jamil, Hadi Bux, Hassan Sher. (2019). Genetic analysis of wheat grains using digital imaging and their relationship to enhance grain weight. *Scientia Agricola*, DOI: <http://dx.doi.org/10.1590/1678-992X-2019-0069>
6. Shahzada Azizullah Khan, Shujaul Mulk Khan, Zahid Ullah, Zeeshan Ahmad, Naveed Alam, Syed Nasar Shah, Raees Khan, and Malak Zada. (2019). Phytogeographic classification using multivariate approach; a case study from the Jambil valley Swat, Pakistan. Pak. J. Bot., 52(1), DOI: [http://dx.doi.org/10.30848/PJB2020-1\(11\)](http://dx.doi.org/10.30848/PJB2020-1(11))
7. Tariq Alam, Raja Asad Ali Khanb, Ahmad Ali, Hassan Sher, **Zahid Ullah**, Mohammad Ali. (2019) Biogenic synthesis of iron oxide nanoparticles via *Skimmia laureola* and their antibacterial efficacy against bacterial wilt pathogen *Ralstonia solanacearum*. *Materials Science & Engineering C*. 98: 101-108.
8. Sohail Anwar, Shujaul Mulk Khan, Zeeshan Ahmad, **Zahid Ullah**, Majid Iqbal (2019). Floristic composition and ecological gradient analyses of the Liakot Forests in the Kalam region of District Swat, Pakistan.
9. Uzma, Betty Strack, **Zahid Ullah**, Andrew L. Hipp, Rabia Amir and Muhammad Qasim Hayat. (2019). Pattern of Diversity among Pistillate Scales of the Western Himalayan *Carex* L. (Cyperaceae): Micromorphological and Molecular Inferences. *International Journal of Agriculture and Biology*. DOI: 10.17957/IJAB/15.0942
10. Shaheen, H., M. Ibrahim and **Z. Ullah**. 2019. Spatial patterns and diversity of the alpine flora of Deosai Plateau, Western Himalayas. Pak. J. Bot., 51(1): DOI: [http://dx.doi.org/10.30848/PJB2019-1\(39\)](http://dx.doi.org/10.30848/PJB2019-1(39)).
11. Fakiha Afzal, Ahmad Ali, **Zahid Ullah**, Hassan Sher, Alvina Gul, Abdul Mujeeb-Kazi and Muhammad Arshad. 2018. Terminal Drought Stress Adaptability in Synthetic-Derived Bread Wheat is explained by Alleles of Major Adaptability Genes and Superior Phenology. *International Journal of Agriculture & Biology*. DOI: 10.17957/IJAB/15.0680
12. Zaheer Abbas, Shuja Ul Mulk Khan, Jan Alam, **Zahid Ullah**, Sher Wali Khan and Naveed Alam. (2017). Species Diversity and Phyto-Climatic Gradient of a Montane Ecosystem In The Karakorum Range. *Pakistan Journal of Botany*, 49: 89-98.
13. Zaheer Abbas, Shujaul Mulk Khan, Arshad Mehmood Abbasi, Andrea Pieroni, **Zahid Ullah**, Muhammad Iqbal and Zeeshan Ahmad (2016). Ethnobotany of the Balti community, Tormik valley, Karakorum range, Baltistan, Pakistan. *Journal of Ethnobiology and Ethnomedicine*. DOI 10.1186/s13002-016-0114-y

14. **Zahid Ullah**, Mushtaq Ahmad, Hassan Sher, Hamayun Shaheen and Shujaul Mulk Khan (2015). Phytogeographic analysis and diversity of the grasses and sedges (*Poales*) of Northern Pakistan. Pakistan Journal of Botany 47(SI), 93-104. IF: 1.21
15. Muhammad Iqbal, Shujaul Mulk Khan, Muhammad Azim Khan, Inayat Ur Rahman, Zaheer Abbas and **Zahid Ullah** (2015) Exploration and Inventorying of Weeds in Wheat Crop of the District Malakand, Pakistan. Pakistan Journal of Weed Science Research, 21(3), 435-452.
16. Hamayun Shaheen, Rizwan Sarwar, Syeda Sadiqa Firdous, M. Ejaz ul Islam Dar, **Zahid Ullah** and Shujaul Mulk Khan (2015) Distribution and structure of Conifers with special emphasis on *Taxus baccata* in moist temperate forests of Kashmir Himalayas. Pakistan Journal of Botany, 47(SI), 71-76. IF: 1.21
17. Khalid Rehman, Zia-ur-Rehman Mashwani, Mubark Ali Khan, **Zahid Ullah**, Hassan Javed Chaudhary (2015). An ethno botanical perspective of traditional medicinal plants from the Khattak tribe of Chonthra Karak, Pakistan. Journal of Ethnopharmacology, 165, 251-259. IF: 2.94
18. Hamayun Shaheen, Zaheer-Ul-Islam Dar and **Zahid Ullah** (2014) Indigenous ethnobotanical remedies practiced to cure feminine diseases in tribal communities of Kashmir Himalayas. International Journal of Phytomedicine 6 (1), 103-108. IF: 1.09
19. **Zahid Ullah**, Mushtaq Ahmad and Richard I Milne (2013) Phylogenetic relationship of Pakistani species of *Carex* L. based on *matk* gene sequence variation. Pakistan Journal of Botany 45, 185-190. IF: 1.21
20. Kifayat Ullah, Mushtaq Ahmad, Shazia Sultana, **Zahid Ullah** (2014) Experimental analysis of di-functional magnetic oxide catalyst and its performance in the hemp plant biodiesel production. Applied Energy 113, 660–669. IF: 5.24
21. Shujaul Mulk Khan, Sue Page, Habib Ahmad, **Zahid Ullah**, Hamayun Shaheen, Mushtaq Ahmad, David M. Harper (2013) Phyto-climatic gradient of vegetation and habitat specificity in the high elevation Western Himalayas. Pakistan Journal of Botany 45, 223-230. IF: 1.21
22. Shujaul Mulk Khan, Sue Page, Habib Ahmad, Hamayun Shaheen, **Zahid Ullah**, Mushtaq Ahmad, David M. Harper (2013) Medicinal flora and ethnoecological knowledge in the Naran Valley, Western Himalaya, Pakistan. Journal of Ethnobiology and Ethnomedicine 9 (4). IF: 2.0
23. Hamayun Shaheen, Zabta Khan Shinwari, Rizwana Aleem Qureshi, **Zahid Ullah** (2012) Indigenous Plant Resources and their utilization practices in village populations of Kashmir Himalayas. Pakistan Journal of Botany 44, 739-745. IF: 1.21
24. Hamayun Shaheen, **Zahid Ullah**, Shujaul Mulk Khan, David M Harper (2012) Species composition and community structure of western Himalayan moist temperate forests in Kashmir. Forest Ecology and Management 278, 138-145. IF: 2.66
25. Hamayun Shaheen, Rizwana Aleem Qureshi, **Zahid Ullah**, Tahira Ahmad (2011) Anthropogenic pressure on the western Himalayan moist temperate forests of Bagh, Azad Jammu & Kashmir. Pakistan Journal of Botany 43 (1), 695-703. IF: 1.21
26. Abida Bano, Mushtaq Ahmad, Mir Ajab Khan, Muhammad Zafar, Shazia Sultana, **Zahid Ullah** (2012) Pollen morphology of four endemic species of *Pedicularis* L. from alpine zone of the Deosai Plateau, Himalayan range. Bangladesh Journal of Plant Taxonomy 19, 1-5. IF: 0.367
27. **Zahid Ullah**, Mir Ajab Khan, Mushtaq Ahmad, Muhammad Zafar, Kifayat Ullah (2011) Systematic implications of foliar epidermis in *Andropogoneae* (*Poaceae*) from Hindukush-himalayas Pakistan. Journal of Medicinal Plants Research 5(6), 949–957.
28. Ghazala Yasmin, Mir Ajab Khan, Nighat Shaheen, Muhammad Qasim Hayat, **Zahid Ullah**, Shakira Munsif (2009) Systematic Value of Foliar Anatomical Features in *Polygonum* species, Family *Polygonaceae* from Pakistan. International Journal of Agriculture and Biology 11, 731-736. IF: 0.9
29. Hamayun Shaheen, Naseer Ahmad, Naveed Alam, Khalid Ahmed, **Zahid Ullah** (2011) Phytodiversity and endemic richness in high altitude Rama Valley, Western Himalayas, Northern Pakistan. Journal of Medicinal Plants Research. IF: 0.59
30. N. Alam, Z.K Shinwari, M. Ilyas, **Z. Ullah** (2011). Indigenous Knowledge of Medicinal Plants of Chagharzai Valley, District Buner, Pakistan. Pakistan Journal of Botany. 43(2): 773-780.
31. Hamayun Shaheen, SM Khan, DM Harper, **Zahid Ullah**, Rizwana Aleem Qureshi (2011) Species diversity, community structure, and distribution patterns in western Himalayan Alpine pastures of Kashmir, Pakistan. Mountain Research and Development, 31 (2): 153-159, IF: 0.99

32. Rabia Naimat, Mir Ajab Khan, Kiran Yasmin Khan, Barkat Ali, **Zahid Ullah**, Paras Mazari (2012) Palynomorphological characterization of some species of selected genera of family Rhamnaceae. Research in Plant Biology, 2(2), 4-9.
33. M. Zafar, M.A Khan, M Ahmad, G Jan, S Sultana, K Ullah, SK Marwat, F Ahmad, **Z. Ullah** (2010) Elemental analysis of some medicinal plants used in traditional medicine by atomic absorption spectrophotometer (AAS). J. Med. Plants Res 4 (19), 1987-1990.

Articles accepted or submitted

1. **Zahid Ullah**, Asma Waqas, Shahzada Azizullah Khan, Ahmad Ali, Naveed Alam and Hassan Sher. (2018). Systematic Significance of Leaf Epidermal Features in *Brassicaceae* of Swat, Pakistan. Submitted to Microscopy Research Techniques
2. Akbar Zeb, **Zahid Ullah**, Naveed Alam, Ahmad Ali and Hassan Sher. (2018). Cultural Values of the Ethnobotanically important Flora of Gokand Buner. Submitted to Ethnobotany Research and Applications.

Articles Published in Conference/seminar proceedings

1. **Zahid Ullah**, Mushtaq Ahmad, Hassan Sher, Shujaul Mulk Khan, Hamayun Shaheen and Naveed Alam. (2015). Systematics and Diversity of the genus *Poa* (Poaceae) in the Western Himalayas Pakistan. Published in Pharmacology online.
2. **Zahid Ullah**, Mir Ajab Khan, Mushtaq Ahmad, Muhammad Zafar and Rahmatullah Qureshi (2010). The Alien flora of Islamabad: A threat to native Biodiversity. Proceedings of international conference "IC Biour-Life held at centre for Biodiversity and Conservation, Shah Abdul Latif University Khairpur from December 29-31, 2010. Pp 123-136.
3. **Zahid Ullah**, Mushtaq Ahmad, Muhammad Ilyas, Mir Ajab Khan and Muhammad Zafar (2011). Phytodiversity, Community composition and Biological Spectrum of the vegetation of Miandam valley Swat Pakistan. Proceedings of the National Symposium on the Biodiversity of Pakistan, June 7-9 PMNH Islamabad. Pp 55.
4. Z.R. Mashwani, R. Qureshi, M. Arshad, M.A. Khan, M. Ahmad and **Zahid Ullah** (2010). The Diversity of Grasses in the Gandgar range, Northwest Pakistan. Proceedings of international conference "IC Biour-Life held at centre for Biodiversity and Conservation, Shah Abdul Latif University Khairpur from December 29-31, 2010. Pp 107-117.
5. A.M. Abbasi, M.A. Khan, M. Ahmad, M. Zafar, M. Munir, S. Sultana, **Zahid Ullah**, Z.R. Mashwani, R. Qureshi, K.Y. Khan and R. Niamat (2010). The Diversity of Grasses in the Gandgar range, Northwest Pakistan. Proceedings of international conference "IC Biour-Life held at centre for Biodiversity and Conservation, Shah Abdul Latif University Khairpur from December 29-31, 2010. Pp 155-177.
6. **Zahid Ullah**, Mushtaq Ahmad, Muhammad Ilyas, Mir Ajab Khan and Muhammad Zafar (2012) Phytocultural diversity and phyto use pattern in mountain ecosystem of Miandam Swat Pakistan. Proceedings of 1st National Conference on poverty alleviation through sustainable management of biodiversity" organized by Institute of Plant Sciences and Biodiversity, University of Swat, September 29-30, 2012.
7. Amjad Iqbal, **Zahid Ullah** and Mushtaq Ahmad. (2012). Presence of Bioactive compounds in *Lepidium* L. exudates: Role in Allelopathy. Abstract Book 12th National and 3rd International Conference of Botany at Quaid-I-Azam University Islamabad, September 1st to 3rd 2012.

References

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