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Conservation of Native Vascular Plants of Township campus, University of Science and Technology Bannu, Khyber Pakhtunkhwa, Pakistan

Hira Saleem, Sultan Mehmood, Rehman Ullah Khan, Sikandar Khan Sherwani, Saad Ullah Khan, Aziz Khan, Ihsan Ullah.

ABSTRACT

The present work was based on the results of intensive survey and study of plants which were present in the area of township campus, University of Science and Technology Bannu. As a result of several regular trips to the study area, a total of 32 plants species belonging to 21 families were collected, identified and preserved in the herbarium of Botany Department. It was concluded that the dominant family was Poaceae with six Species which is followed by Asteraceae with four Species, Amranthaceae, fabaceae and solonaceae with two species each. The main objective of conducting the research was to explore and conserve the flora found in the 175 acre area of Bannu University. Rapid construction of the buildings inside the university area will leads to the loss of the native flora. Therefore the data on the native flora will be kept on record for future generation in the form of herbarium sheet

Keywords: Conservation, Native Vascular Plants, UST, Bannu.

1. Introduction

The University of Science & Technology Bannu, is a public university situated in the Bannu district of KPK, Pakistan, created under Provincial Assembly Act No. XIII in 2005. (Notification No: PA/NWFP/Legis:1/2005/28/16.). It is an autonomous body governed by the Chancellor's Committee. The school currently offers Bachelor and Master, M.Phil. And Ph.D. level degrees and high quality education in the fields of Life Sciences, Engineering and Technology, Social Sciences, Physical Sciences, Business Studies and Humanities. Total area is 175 acre. The soil of the study area is Sandy loam; the climate is warm in summer and cold in winter. May and June are hottest months of the area with mean min and max temperature 30 C° and 42 C° respectively. Winter months are December, January and February. The mean maximum Rainfall occurs during the month of August i.e. 111.36 millimetres.

1.1. Biodiversity of the area

The area has a broad spectrum of plant biodiversity. The major species are *Cynodon dactylon* Pers. (Common fodders), *Chenopodium murale*, *Aerva javanica*, *Euphorbia helioscopia*, *Heliotropium europaeum*, *Datura metel* L., *Solonum surattense*, *Opuntia monacantha* Haw, *Convolvulus arvensis* L., *Citrullus colocynthis* (L.) Schrad, *Calotropis procera*, *Parthenium integrifolium* L., *Xanthium strumarium* L. and *Rumax dentate* ^[1]. Common medicinal Trees are *Acacia arabica*, *Cassia fistula* L, and *Zizyphus jujuba*. People of these areas use plants in many ways such as Medicinal, Timber, Wood, Fuel wood, Food, Fodder etc ^[2]. The present research has taken the challenge of conserving the gene pool of economically, medicinally, socially and ecologically important plants species of UST, Bannu, Pakistan.

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2. Materials and Method

The present study was conducted during October and November 2010. Work plan was prepared. Topo sheets and maps were obtained from concerned offices.

2.1 Study area:

The study was conducted in 175 acre area of township campus, University of Science and Technology Bannu.

2.2 Equipments:

The equipments used during the Research work were Note Book, Map of area, Pencil, Plant Presser, old English News Papers and Blotting Papers, Polythene Bags, Knife and Camera (Fuji, Model no. Fujifilm FX 100)

2.3 Methodology: The methodology comprised of field surveys, collection & preservation of plants and their subsequent

identification.

2.4 Surveys:

Frequent trips were arranged during October and November 2010.

2.5 Plant collection and preservation:

During these frequent trips plants were collected from various sites of the university. The specimens were dried in folded newspapers. The plants were tagged with signified data. The specimens were pressed in a presser with blotting paper between the adjacent specimens. The blotting papers and newspapers were changed from time to time depending upon the weather and habitat of plant. Dried species were poisoned by 2% solution of Mercuric Chloride and Ethyl Alcohol or sprayed with mumeric acid to protect them from the attack of Fungi and bacteria. Mounting of specimens was made on standard herbarium-sheets of size 41.25cm x 28.75cm.

Table: 1 List of plants along with their families.

S.N	Family	Plants
1.	Chenopodiaceae	<i>Chenopodium murale</i> L.
2.	Amaranthaceae	<i>Aerva javanica</i> Juss. Ex Schult. <i>Amaranthus viridis</i> L.
3.	Apiaceae	<i>Ammi majus</i> L.
4.	Myrsinaceae	<i>Anagallis arvensis</i> L.
5.	Fabaceae	<i>Cassia fistula</i> L. <i>Melilotus indicus</i> L.
6.	Ephorbiaceae	<i>Euphorbia helioscopia</i> L.
7.	Boraginaceae	<i>Heliotropium europaeum</i> L.
8.	Poaceae	<i>Alopecurus prantensis</i> L. <i>Aristida mutabilis</i> Trin & Rupr. <i>Cenchrus setigerus</i> Vahl <i>Cynodon dactylon</i> (L.)Pers <i>Sacharum arundinaceum</i> <i>Lolium temulentum</i> L.
9.	Solonaceae	<i>Datura metel</i> L. <i>Solonum surattense</i> Burm. f
10.	Cactaceae	<i>Opuntia monocantha</i> Haw
11.	Convolvulaceae	<i>Convolvulus arvensis</i> L.
12.	Cucurbitaceae	<i>Citrullus colocynthis</i> (L.) Schrad
13.	Apocynaceae	<i>Calotropis procera</i> (Aiton) W.T.Aiton
14.	Asteraceae	<i>Parthenium integrifolium</i> L. <i>Xanthium strumarium</i> L <i>Conyza bonariensis</i> (L.) Cronquist <i>Launaea procumbens</i> Pravin Kawale.
15.	Asphodelaceae	<i>Asphodelus tenuifolius</i> Cav.
16.	Brassicaceae	<i>Sisymbrium officinale</i> (L.) Scop
17.	Oxalidaceae	<i>Oxalis griffithii</i> L.
18.	Rhamnaceae	<i>Ziziphus jujube</i> Mill
19.	Zygophyllaceae	<i>Tribulus terrestris</i> L.
20.	Mimosaceae	<i>Acacia Arabica</i> Willd.
21.	Polygonaceae	<i>Rumex dentatus</i> Linn
Total	21 families	32 Plants

2.6 Species identification:

Collected plants species were identified by Prof, Abdur Rehman, Chairman Department of Botany, GPGC, Bannu, Dr Sultan Mehmood and Rehman ullah khan Department Botany, UST, Bannu. and also with the help of available literature [3,4,5] and by

using the herbarium of Biological Sciences, Quaid-e-Azam University Islamabad. The result was rechecked and compare with that of [6,7,8,1]. These plant specimens were accessioned and submitted to the Herbarium of Department Botany, UST, Bannu.

3. Result and Discussion

Plants form the basis of life, the energy obtained from food is first converted from sunlight to usable, transferable energy by green plants. Plants create and modify local environmental condition on which many species of animals and other plants depend. They provide us, medicines for ailment, so the significance of plants is in all pervasive [9,10]. The interaction between the people and natural system has helped in maintaining the richness of species communities and genetic material in both productive system and wild land environment [11]. However, the rich biodiversity is being disastrously impoverished due to human action in the last few decades. So conservation of important flora for coming generation is necessary [12]. To meet the required demands of the raw materials, efforts should be made to cultivate these important native plants on large scale. In this regard, the motivation of growers and assured marketing are very important. Special attention should be given to highly valuable and threatened plants of the area. Habitat, where genetic erosion of native plants is under severe threat, should be identified and practices should be documented it [13]. For the conservation of wealth of natural plant resources botanical gardens should be established, with the involvement of local people and germ plasma collection of useful plants should be carried out.

Nurseries should be developed to supply propagating materials of important plants to local inhabitants [14]. With the in-vitro technology, those plants should be immediately grown which are very difficult to grow. Efforts should be made to evolve simple, efficient and economical protocol for rapid multiplication and genetic stability of germ plasma of these native plants [15].

Present study is an attempt to document important native flora which is present in the area of township campus, University of Science and Technology Bannu. As a result of several regular trips to the study area, a total of 32 plants species belonging to 21 families were collected, identified and preserved in the herbarium of Botany Department. It was concluded that the dominant family was Poaceae with Six Species which is followed by Asteraceae with four Species, amaranthaceae, fabaceae and solonaceae with two species each. The major species are *Cynodon dactylon* Pers. (Common fodders), *Chenopodium murale*, *Aerva javanica*, *Euphorbia helioscopia*, *Heliotropium europaeum*, *Datura metel* L., *Solomon surattense*, *Opuntia monacantha* Haw, *Convolvulus arvensis* L., *Citrullus colocynthis* (L.) Schrad, *Calotropis procera*, *Parthenium integrifolium* L., *Xanthium strumarium* L. and *Rumax dentate*.

Plate1. View of collected native plant species.



1. *Chenopodium murale*



2. *Aerva javanica*



3. *Amaranthus viridis*



4. *Ammi majus*



5. *Anagallis arvensis*



6. *Cassia fistula*



7. *Melilotus indicus*



8. *Euphorbia helioscopia*



9. *Heliotropium europaeum*



10. *Alopecurus prantensis*



11. *Aristida mutabilis*



12. *Cenchrus setigerus Vahl*



13. *Cynodon dactylon*



14. *Sacharum arundinaceum*



15. *Lolium temulentum*



16. *Datura metel*



Table 2: Distribution of species among families.

S.N	Family	Plants species
1.	Chenopodiaceae	1
2.	Amaranthaceae	2
3.	Apiaceae	1
4.	Myrsinaceae	1
5.	Fabaceae	2
6.	Ephorbiaceae	1
7.	Boraginaceae	1
8.	Poaceae	6
9.	Solonaceae	2
10.	Cactaceae	1
11.	Convolvulaceae	1
12.	Cucurbitaceae	1
13.	Apocynaceae	1
14.	Asteraceae	4
15.	Asphodelaceae	1
16.	Brassicaceae	1
17.	Oxalidaceae	1
18.	Rhamnaceae	1
19.	Zygophyllaceae	1
20.	Mimosaceae	1
21.	Polygonaceae	1

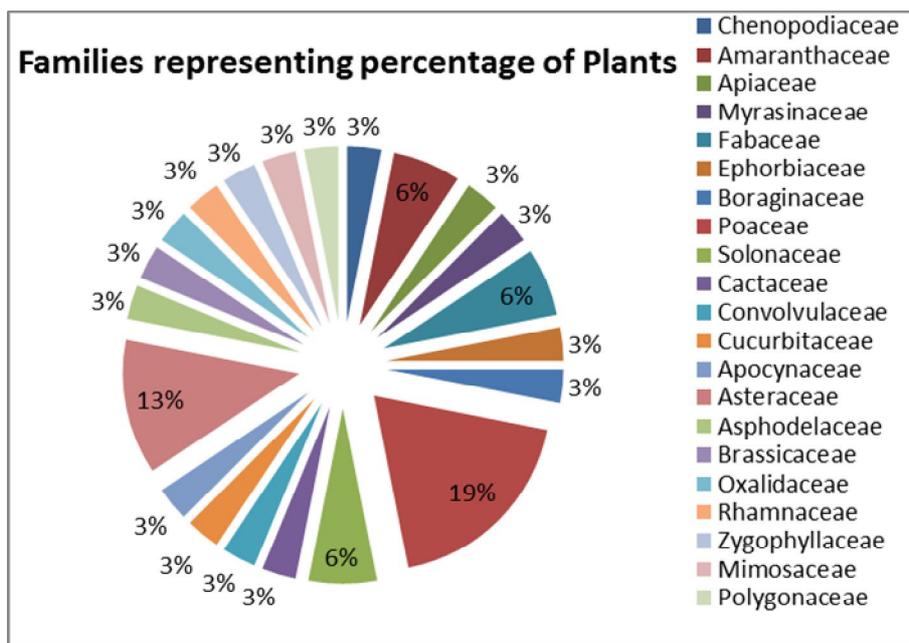


Fig 1: Graphic representation of percentage of plants contributed by family

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5. Reference:

- Wazir SM, Saima S, Dasti AA, Subhan M. Ethnobotanical importance of salt range species of District Karak, Pakistan. *Pak. J. Plant. Sci.* 2007; 13: 27-29.
- Hussain F, Khaliq A, Ethnobotanical Studies of some plants of Dabargai Hills Swat. Proceedings of first Training Workshop on Ethnobotany and its application to conservation. NARC, Islamabad, 1996; 207-215
- Stewart RR. An Annotated catalogue of Vascular plants of West Pakistan and Kashmir, Karachi, 1972.
- Ahmad M, Khan MA, Qureshi RA. Ethnobotanical study of some cultivated plants of Chuch Region (District Attock) Department of Biological Sciences Quaid-e-Azam University, Islamabad, Pakistan, 2003
- Nasir E, Ali SI. Flora of West Pakistan Department of Botany, University of Karachi, Karachi, 1971-95.
- Rubina AR. Need of conservation for endangered Medicinal Plants, Proc. Wild Medicinal Plant Resources of Northern Pakistan, May 11-12, PFI, Peshawar, Pakistan, 1998.
- Ali A, Fefevre JL. "Indigenous knowledge of plants-A case study in Chitral", *Proc. Ethnobotany Workshop*, September 16-24, NARC Islamabad, 1996; 136-151.
- Khalid S. "Plant in danger", Proc. Fifth National Conference of Plant Scientists, March 28-30, NARC Islamabad, 1995.
- Ahmad Z. Conservation of wildlife and its habitat in Soan Valley. *Tiger Paper*, Jan-March, 2002; 29(1):12-16.
- Sultan A. The identification of Angiosperm-I, Monocotyledon-II Dicotyledons. Lahore Art Press, 15. Anar Kali Lahore, Pakistan, 1964.
- Khan A, Rashid A. M.Sc thesis on Aquatic plants of Bannu District, N.W.F.P, Department of Botany University of Peshawar, 2001.
- Pei I. Conservation of Biological diversity in Templeyard and Holly hills by the Daui Ethnic Minorities of China. *Ethno biology*, 1991; 3: 27-35
- Chaudhri MN, Qureshi RA. Pakistan endangered flora-II .A. Checklist of rare and seriously threatened taxa of Pakistan, Pakistan systematic, 1991; 5(12):1-84
- Bey RA. Medicinal plants of Syria Madrc; comparative study of Tarah umara and Mexican market plants, *Journ of econ. Bot*, 1986; 40(1): 103-104.
- Ahmad YS. A note on the plant of medicinal value found, Medicinal Plant Branch, Pakistan Forest Research Institute, Abbottabad, 1956; 1-55.