



Floral diversity of Namal valley Mianwali in Salt range of Pakistan

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Abstract

Present study was organized to investigate the present floral diversity in the Namal valley, district Mianwali Punjab Pakistan which is part of salt range of Pakistan. Area has special importance for study due to its geographical location, Presence of beautiful lakes and mountains which are enriched with important plant species. Extensive survey was conducted during June 2018 to July 2019 and sample from 56 plant species that belong to 34 families were collected, pressed and dried for herbarium record in the University of Agriculture Faisalabad. It was concluded that all of the area of Namal valley in district Mianwali is enriched with important plant species. Plant distribution due to salt stress was found to be different in different sites of the area.

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Introduction

Information about floral diversity of an area is very important for any ecological and management activity. Listing of plant species, identification along with their correct naming are helpful for biodiversity estimates. (Saima *et al.*, 2010). Floral diversity can be affected by many factors such as deforestation, overgrazing and salinity stress. Plants distribution is different in different areas and they have a large impact on environment (Ali, 2008).

Plants are contributing for changing environment of the area, because they are more important than faunas due to their usage (Ajaib *et al.*, 2010).

Floral diversity is playing vital role to change the environment, bringing animal diversity in the area. They are playing vital role to change economic conditions of human beings. Salt range of Pakistan has unique kind of floral diversity. Mostly three kinds of forest are found named as scrub forest, thorny ever green forest and sub-tropical semi ever green forest and they all are facing extreme of drought and salinity (Ahmad *et al.*, 2010).

Increasing Salt concentration causes plant to stunt growth and Cytoplasmic variation, but in little amount salt are important for soil (Munns, 2005). Salt stress causes much limitation in growth of plant species which comes from salty rocks and it deposits on soil by irrigation and other resources. (Bhutta, 2011)

Salt range of Pakistan is facing many problems like soil erosion, drought and salt stress. Many important herbs and shrubs are found in this part of the earth which have resistant to survive in such conditions (Ashraf *et al.*, 2004).

Salt is major constituent of the soil in salt range of Pakistan it disturbs floral diversity of plants and distributes the diversity according to its concentration. Rice has potential to grow best in saline environment. (Abbas *et al.*, 1994). Plants are different in there salinity tolerance many grasses

tolerate against drought and salinity (Hameed and Ashraf, 2008). Drought, salinity and poor soil are major cause of reduction in population size of species (Rahdari *et al.*, 2012).

Namal valley in district Mianwali Punjab Pakistan is very beautiful place due to many lakes and mountains; it is part of Salt range of Pakistan. Aims and objective of the study were to explore the floral diversity of the area that is badly affected by salt stress and its famous topography due to many attracted lakes.

Materials and methods

Study area of Namal Valley is one of the most important valleys in the Salt range of Pakistan. It is located on the eastern border of Mianwali District in Punjab Pakistan. It has a beautiful topography due to many lakes, of which Namal Lake is larger and have vast floral diversity. First of all extensive study survey was arranged during June 2018 to July 2019 and sample of plant species from Namal Valley in Salt range of Pakistan were gathered, hard pressed and dried out, dried specimens were labeled and voucher number were allotted, later mounted over herbarium sheet for record in University of Agriculture Faisalabad Pakistan. Aid was taken from (Flora of Pakistan) for name confirmation of collected plant specimens (Nasir and Ali, 1970-2003). Photographs of the habitat were taken in their original habitat, 10 permanent quadrates each of 05 m² were laid at every habitat along straight transect line.

Results

In the present research work total 56 plant species belonging to 34 families were collected from different sites of the Namal Valley Mianwali, Punjab Pakistan.

Floral diversity in the area was found to be of different sizes in different sites due to Salt concentration and that was the major limiting factor for plant growth while many salt tolerating plant species were good in their growth. Lakes were brine due to salt water that comes after rain. Poaceae family was dominating in the area.

Table 1. Floral diversity recorded in Namal Valley Mianwali.

Sr. No.	Scientific name	Family	Sr. No.	Scientific name	Family
1	<i>Grewia villosa</i>	Tiliaceae	29	<i>Acacia nilotica</i>	Fabaceae
2	<i>Olea ferruginea</i>	Oleaceae	30	<i>Cyperus rotundus</i>	Cyperaceae
3	<i>Conyza ambigua</i>	Asteraceae	31	<i>Oxalis corniculata</i>	Oxalidaceae
4	<i>Prosopis juliflora</i>	Fabaceae	32	<i>Capparis deciduas</i>	Capparidaceae
5	<i>Salvadora oleoides</i>	Salvadoraceae	33	<i>Verbascum Thapsus</i>	Scrophulariaceae
6	<i>Aeluropus lagopoides</i>	Poaceae	34	<i>Euphorbia hirta</i>	Euphorbiaceae
7	<i>Xanthium strumarium</i>	Asteraceae	35	<i>Zanthoxylum armatum</i>	Rutaceae
8	<i>Dalbergia sissoo</i>	Papilionaceae	36	<i>Calotropis procera</i>	Asclepidaceae
9	<i>Saccharum bengalense</i>	Poaceae	37	<i>Cenchrus pennisetiformis</i>	Poaceae
10	<i>Boerhavia diffusa</i>	Nyctaginaceae	38	<i>Cyperus compressus</i>	Cyperaceae
11	<i>Cgryosopogon serrulatus</i>	Poaceae	39	<i>Tamarix aphylla</i>	Tamaricaceae
12	<i>Rhazya stricta</i>	Apocynaceae	40	<i>Ochthochloa compressa</i>	Poaceae
13	<i>Cymbopogon jwarancusa</i>	Poaceae	41	<i>Acacia modesta</i>	Fabaceae
14	<i>Suaeda vera</i>	Amaranthaceae	42	<i>Ziziphus jujube</i>	Rhamnaceae
15	<i>Digitaria adscendens</i>	Poaceae	43	<i>Fimbristylis dichotoma</i>	Cyperaceae
16	<i>Malvastrum coromandelianum</i>	Malvaceae	44	<i>Schoenoplectus juncooides</i>	Cyperaceae
17	<i>Eucalyptus camaldulensis</i>	Myrtaceae	45	<i>Sporobolus arabicus</i>	Poaceae
18	<i>Aristida adscensionis</i>	Poaceae	46	<i>Ziziphus nummularia</i>	Rhamnaceae
19	<i>Cressa cretica</i>	Convolvulaceae	47	<i>Eragrostis ciliaris</i>	Poaceae
20	<i>Cenchrus setigerus</i>	Poaceae	48	<i>Alopecurus aequalis</i>	Poaceae
21	<i>Dactyloctenium scindicum</i>	Poaceae	49	<i>Withania coagulans</i>	Solanaceae
22	<i>Asphodelus tenuifolius</i>	Asphodelaceae	50	<i>Morus alba</i>	Moraceae
23	<i>Fagonia ovalifolia</i>	Zygophyllaceae	51	<i>Cynodon dactylon</i>	Poaceae
24	<i>Justicia adhatoda</i>	Acanthaceae	52	<i>Paganum harmala</i>	Nitrariaceae
25	<i>Achyranthes aspera</i>	Amaranthaceae	53	<i>Malvastrum coromandelianum</i>	Malvaceae
26	<i>Bombax cieba</i>	Malvaceae	54	<i>Verbascum Thapsus</i>	Scrophulariaceae
27	<i>Buxuss papillosa</i>	Buxaceae	55	<i>Woodfordia fruticosa</i>	Lythraceae
28	<i>Prosopis glandulosa</i>	Mimosaceae	56	<i>Lantana indica</i>	Verbenaceae

Discussion

In the present research work it was noted that salt stress was the main limiting factor in the area along with anthropogenic activities like deforestation etc. Many plant species like *Dactyloctenium scindicum*, *Asphodelus tenuifolius*, *Alopecurus aequalis* and *Capparis deciduas* were found to be badly affected by salt stress however *Cgryosopogon serrulatus*, *Rhzya stricta* and *Withania coagulans* due to their salt tolerating ability were dominating. Poaceae family was recorded as largest family in the area with greater

percentage of plant species. In earlier studies it was observed that salinity and other stresses are key factor for the distribution of species in different geographic location of the world (Ellery *et al.*, 1993). It was noticed that due to changing pattern of climatic condition, floral diversity changes and tree species are best to grow in the saline environment.

In earlier studies it was noticed that Salt range of Pakistan is a site of many important plant species that are playing key role in medicine, food dyes and many

other needs. *Buxuss papillosa*, *Woodfordia fruticosa*, *Calotropis procera*, *Onosma hispidum*, *Eclipta prostrate*, *Vernonia anthelmintica* *Acacia nilotica*,

Withania coagulens and *Zanthoxylum armatum* are commonly occurring plant of the salt range (Ahmad et al., 2002).



Fig. 1. Habitat of the Namal Valley Mianwali.

From the above discussion, about floral diversity of Namal Valley Mianwali, Punjab Pakistan, it can be easily concluded that salt stress has powerful effects

for distribution of species and it inhibits the growth of many plants, only those plant species can survive which have salinity tolerance.

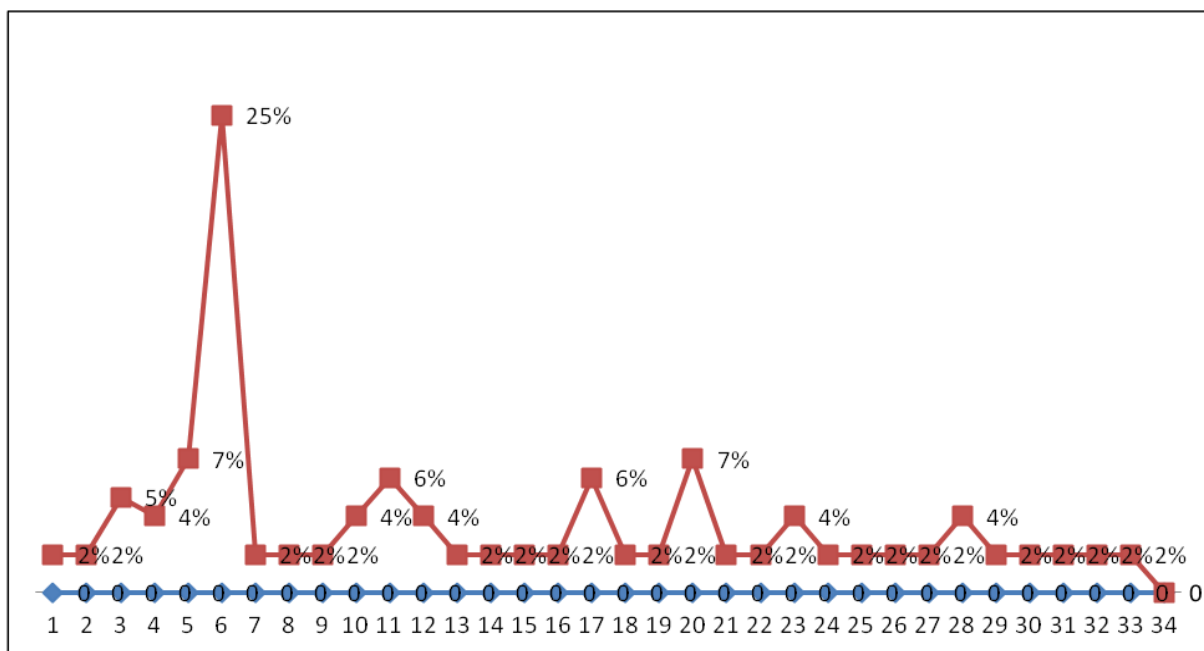


Fig. 2. Percentage % of Plant Families recorded.

Plant species found in this area are economically and medicinal very important because they are source of income for poor villagers of this valley. Lakes found in this area are saline and due to their beauty attracts the visitors.

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