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Fort epilithophytes of Gulbarga, Karnataka, India

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Abstract

The Structure and composition of vegetation scale is shaped by environmental factors such as sunlight temperature and moisture. The diversity of plant species is strongly related to climate. The present paper deals with the epilithophytes of Gulbarga fort. A total 59 species and 47 genera belonging to different 22 families have been recorded. It is observed that the number of plants was highest in the rainy season and lower in the summer season. Fort wall flora shows very poor representation of monocotyledons. It is interesting to note that the family Poaceae occupies top position among the families and the genus *Cyperus* Linn. amongst the genera.

Keywords: Epilithophytes, fort, diversity, Gulbarga, Karnataka

Introduction

Plant study is one of the most important aspect with respect to plant diversity and its status in the existing forests of the world. Shrikanth *et al.*, (2006) ^[14], Anuradha Chauhan *et al.*, (2005), Bairagee and Kalita (2003) ^[2] and Ramanjam and Kadamban (2001) ^[10] etc. have given account of the flora of different regions of India based on the natural habitats. However there are very meager reports on fort flora such as Gopalkrishna Bhat (2004) ^[8] and Gandhe *et al.*, (2007) ^[7] as compared to wall flora such as Singh and Chaudhary (1995), Sahu (1984) ^[11], Pangtey and Rawat (1987) ^[9], Bimal *et al.*, (1991), Chhetri (2008) ^[4] etc. have thrown much light on the floristic composition of wall habitats. The Gulbarga fort has rich floristic diversity and so far no reports have been done, though it is very important for ecological point of view and the present investigation has undertaken to document the fort epilithophytes. Gulbarga fort is situated in Northern part of Karnataka and lies between 17°35' and 18°25' north latitude and 76°42' and 77°39' east longitude and altitude of 514 meters from the Sea level and the average temperature varies from 30° to 42 °C (Fig.1).

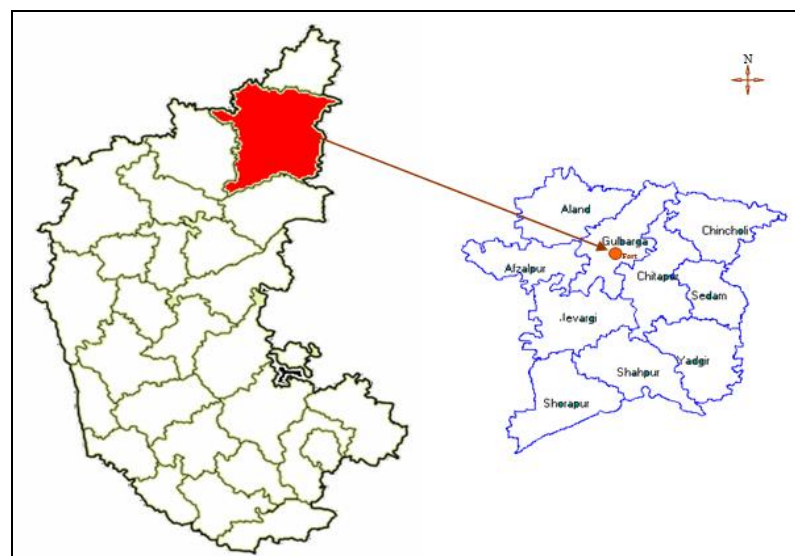


Fig 1: Map of Gulbarga district showing Gulbarga Fort in Karnataka

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Materials and Methods

Frequently visited the Gulbarga fort in different seasons and collected both lower and higher plants growing on the fort walls. Lower plants such as algae, bryophytes and Pteridophytes were preserved in 4% formalin and angiosperms transfer to the blotting paper and carried to the laboratory. All the plants are identified by using the algal monographs (Zafar 1959, Fritch 1945) [16, 5] and flora such as "Flora of Gulbarga District" (Seetharam *et al*, 2000) [13] "Flora of presidency of Madras" (Gamble's 1915-1935) "Flora of Karnataka" (Saldhana *et al*, 1988) and prepared the herbaria. These plants deposited in the department of Applied Botany Kuvempu University, for further reference.

Results

About sixty Fort wall plants of both cryptogams and phenarogams (Non flowering and Flowering) have been recorded from Gulbarga fort among which Algae 05 species, Bryophytes 05 species, Pteridophytes 05 species and angiosperms 20 species along with their family and alphabetically arranged (Table: 1&2).

Table 1: Enumeration of Lower Epilithophytes from Gulbarga fort

Name of the Species	Family
I. Algae	
<i>Oscillatoria princeps</i> Vaucher ex Gomont.	Cyanophyceae
<i>Scytonema myochrous</i> (Dillw.) Ag. ex Born. et Flah.	Cyanophyceae
<i>Anabaena spiroides</i> Klebahn.	Cyanophyceae
<i>Anabaena variabilis</i> Kutz. ex. Born. et Flah.	Cyanophyceae
<i>Microcystis robusta</i> (Clark.) Nygard.	Cyanophyceae
III. Bryophytes	
<i>Riccia tecoma</i> L.	Ricciaceae
<i>Riccia fluitans</i> L.	Ricciaceae
<i>Riccia discolor</i> Lehm. & Lindenb.	Ricciaceae
<i>Plagiochasma cordatum</i> L.	Ricciaceae
<i>Funaria hygrometrica</i> L.	Funariaceae
IV. Pteridophytes	
<i>Actinopteris radiata</i> (SW.) Link.	Actinopteridaceae
<i>Adiantum incisum</i> Forsk.	Adiantaceae
<i>Adiantum hispidulum</i> L.	Adiantaceae
<i>Adiantum lanulatum</i> L.	Adiantaceae
<i>Adiantum raddianum</i> L.	Adiantaceae

Table 2: Enumeration of higher Epilithophytes from Gulbarga fort

Name of the species	Family
V. Angiosperms (Dicotyledons)	
<i>Indoneesiella echioides</i> (L.) Sreem.	Acanthaceae
<i>Andrographis L paniculata</i> Wall. ex Nees.	Acanthaceae
<i>Alternanthera pungens</i> H. B. & Kunth.	Amaranthaceae
<i>Amaranthus spinosus</i> L.	Amaranthaceae
<i>Aerva lanata</i> L.	Amaranthaceae
<i>Amaranthus viridis</i> L.	Amaranthaceae
<i>Achyranthes aspera</i> L.	Amaranthaceae
<i>Pimpinella heyneana</i> (DC.) Kurz.	Apiaceae
<i>Catharanthus roseus</i> (L.) G. Don	Apocynaceae
<i>Calotropis gigantea</i> (L.) R. Br.	Asclepiadaceae
<i>Calotropis procera</i> (Ait.) R.Br.	Asclepiadaceae
<i>Tylophora indica</i> (Burm. f.) Merr.	Asclepiadaceae
<i>Tridax procumbens</i> L.	Asteraceae
<i>Parthenium hysterophorus</i> L.	Asteraceae
<i>Ageratum conyzoides</i> L.	Asteraceae
<i>Tagetes erecta</i> L.	Asteraceae
<i>Echinops echinatus</i> Roxb.	Asteraceae
<i>Pulicaria wightiana</i> (DC.) Cl.	Asteraceae
<i>Cassia occidentalis</i> L.	Fabaceae
<i>Cassia tora</i> L.	Fabaceae
<i>Cleome viscosa</i> L.	Capparidaceae
<i>Cadaba indica</i> Lamk.	Capparidaceae
<i>Croton bonplandianus</i> Bail.	Euphorbiaceae
<i>Tragia mucronata</i> Muell.	Euphorbiaceae
<i>Euphorbia hirta</i> L.	Euphorbiaceae
<i>Abutilon indicum</i> L.	Malvaceae
<i>Ficus racemosa</i> L.	Moraceae
<i>Ficus benghalensis</i> L.	Moraceae
<i>Ficus religiosa</i> L.	Moraceae
<i>Bougainvillea glabra</i> Choisy.	Nyctaginaceae
<i>Solanum nigrum</i> L.	Solanaceae
<i>Vitex negundo</i> L.	Verbenaceae
<i>Lantana camara</i> L.	Verbenaceae
<i>Azima tetraacantha</i> Lam.	Salvadoraceae
Monocotyledons	
<i>Agave americana</i> L.	Agaveceae
<i>Dactyloctenium aegyptiacum</i> (L.) Willd.	Poaceae
<i>Digitaria ciliaris</i> . (Retz.) Koel.	Poaceae
<i>Tricholaena teneriffae</i> Perl.	Poaceae
<i>Apluda mutica</i> L.	Poaceae
<i>Aristida funiculata</i> Trin. & Rupr.	Poaceae
<i>Brachiaria ramosa</i> (L.) Stapf.	Poaceae

<i>Brachiaria reptans</i> (L.) Gard. & C. E. Hebb.	Poaceae
<i>Chloris barbata</i> Sw.	Poaceae
<i>Chloris virgata</i> Sw.	Poaceae

Discussion

It is apparent from the present study that 59 species of plants under 47 genera belong to 22 families occurs on the walls of Gulbarga fort, Karnataka. Herbs are represented by 31 species and shrubs by 08 species, climber by 01 species and trees by 03 species. Herbs and shrubs have been observed growing in normal shape and size throughout all seasons except during summer, but the tree species are in extremely stunted condition. Present exploration has recorded 35 species of diocots, 10 species of monocots similarly 05 species of algae, 05 species of bryophytes and 05 species of Pteridophytes respectively. Poaceae members are dominant followed by Asteraceae, Amaranthaceae, Cyanophyceae, and Ricciaceae. The diversity of Epilithophytes of Gulbarga fort was rich and the present report play significant role to enrich the existing flora of our nation.

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