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Research Article

FLORISTIC DIVERSITY OF MOKA

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ABSTRACT
The present investigation was carried out in order to explore the existing floristic diversity in the Moka village of Ballari district Karnataka state, India. We recorded a total of 81 species belonging to 31 families and 76 genera of flowering plants. Out of 31 families, Asteraceae with 11 species being the dominant family, Fabaceae (11), Amaranthaceae (5), , Euphorbiaceae (5), Apocynaceae (5), Poaceae (4) Acanthaceae (3), Laminaceae (3), Malvaceae (3), Convolvulaceae (2), Verbenaceae (2), and finally Passifloraceae, Oxalidaceae, Meliaceae, Cleomaceae, Moraceae, Boraginaceae, Rubiaceae, Portulaceae, Brassicaceae, Plantaginaceae, Pedaliaceae, Typhaceae, Rhamnaceae, Capparaceae, Muntingiaceae, Phyllanthaceae, Anacardiaceae, Menispermaceae, Solanaceae, Boragiaceae & Myrtaceae each having 1 species.

Keywords: *Ballari district, Moka, Floristic, Taxonomy*

INTRODUCTION
Biodiversity is considered as one of the measures of the health of life and have now assumed greater significance as ecologists try seriously to document global biodiversity in the face of unprecedented agitations, habit loss and extinction rates. Due to various anthropogenic disturbances, biodiversity is declining increasingly throughout the world. In this regard providing correct identity and geographic distribution of plants is vital for successful and effective management of biodiversity. To do this job Plant taxonomy comes into the picture which provides correct identification and variety and variability of floristics of given geographical region.

Study Area
Moka village is located in Ballari taluk and district in Karnataka, India. It is situated 18km away from Ballari. The total geographical area of Moka village is 2530.29 hectors. Ballari city is the northern part of Karnataka; the city covered over an area of 85.95 KM^2 and is situated at an altitude of 485 M from the mean sea level. The coordinates of this city is 15˚ 09' N 76˚ 55' E. This historic town is bounded by Chitradurga, Raichur, Koppal districts. The city has a population of approximately 410,445 as per 2011 census and the population density is sky rocketing as per 4,800/Km^2.

Ballari is the headquarters with number of industries and business organizations. The city is coming out of its shell from a historic town with ravages to an industrial hub. It is embraced with beautiful granite hills and rocks. Unraveling the natural treasure has become common in this town. Now it is used for business purpose. Attached to Ballari is the beautiful valley stretching 48 km is Sandur comprising of thick deciduous forest. Average rainfall in Ballari, maximum rainfall occurs in the month of September, which is 131 mm approximately.

MATERIALS AND METHODS
Collection of plants: All plant specimens were collected throughout the year 2019-20 and were collected containing at least flowers or fruits or preferably both. In case of grasses sedges, and others herbs, the whole plant including the underground part was collected. *Pressing and drying:* Pressing is the process of placing specimens between the absorbents under moderate pressure. Specimens like shrubs and trees were collected by taking only flowering branches and pressed for herbarium. Collected plant species were pressed and kept for drying to prepare herbarium following standard procedure by Rao and Jain (1976).

Fig. 1 Map of Ballari District with Moka Village

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***Identification*:** The plant species were identified by using local district (Seetharam *et al.,* 2000), State (Ramaswamy *et al.,* 1988) and National Floras (Hooker, 1872–1897 & Gamble, 1915).

RESULTS AND DISCUSSIONS

During the survey of the Moka village from 2019-2020 approx. 81 angiospermic plants were collected. Of which the Family, Asteraceae with 11 species. & it is the dominant family, Fabaceae (11), Amaranthaceae (5), Poaceae (4) , followed by Acanthaceae 3 species, Apocynaceae (5), Convolvulaceae (2), Verbenaceae (2), Laminaceae(3), Euphorbiaceae (5), Malvaceae (3), Passifloraceae, Oxalidaceae, Meliaceae, Cleomaceae, Moraceae, Boraginaceae, Rubiaceae, Portulaceae, Brassicaceae, Plantaginaceae, Pedaliaceae, Typhaceae, Rhamnaceae, Capparaceae, Muntingiaceae, Phyllanthaceae, Anacardiaceae, Menispermaceae, Solanaceae, Boragiaceae & Myrtaceae each having 1 species. The plants are enumerated in alphabetical order in table1. About 52% of the flora are herbs, followed by Trees (24%) shrubs (13%), subshrubs (2%), under shrubs (2%), Climbers (5%) and Trailers (1%). The plants are arranged in different hierarchy in Fig.1. The vegetation of the campus is comprised with weedy species. The present study provides the correct and updated nomenclature, family names, habitat, and phenology of all 81 plant species. There are total 31 families, with dominant family Asteraceae and Amaranthaceae and genera Solanum. About 80% of the plant species collected are weedy in nature and they are resistant to high temperature and humidity. Such plants are considered high medicinal valued plants. Because most of them are insect/pest resistant, herbicide resistant and hence predators do not consume them. Added to this the medicinal values of weeds are mentioned by Kavitha Sagar (2015) in her book on 'A Handbook on Weeds of Karnataka', where she has mentioned various ethno botanical uses. Hence, it can rightly be presumed that these plant species have capability of producing high secondary metabolites. Hence it suggested that these plants can be explored for their active compounds and also screened for the production of secondary metabolites. The plants like *Abutilon indica, Acalypha indica, Achyranthus aspera, Ageratum conyzoides, Alternanthera paronochioides, Andrographis paniculata, Blumea lacera, Calotropis gigantea, Calotropis procera, Celosia argenteavar, Cristata, Chloris barbata, Cyanthillium cinereum, Dactyloctneium aegyptium, Digera muricata, Hygrophila auriculata, Ipomoea cairica, Ipomoea obscura, Lantana camera, Lepidogathis cristata, Oxalis corniculata, Parthenium hysterophrus,*

Passiflora foetida, Pantanema indicum, Peristrophe bicalyculata, Physalia minima , Rauvolfia tetraphylla, Setaria verticillata, Solanum virginianum, Sochus oleraceus & Tephrosia purpurea were documented. Medicinal uses of most of the above mentioned plants have already been documented. This directs one that there are still unexplored properties of these recorded plants which are detained and investigation about other biological properties of the plants is highly recommended. The present study is an exhaustive report of the flora of Moka Village, Ballari district which will certainly be useful for students, researchers, administrative officials, and teachers.

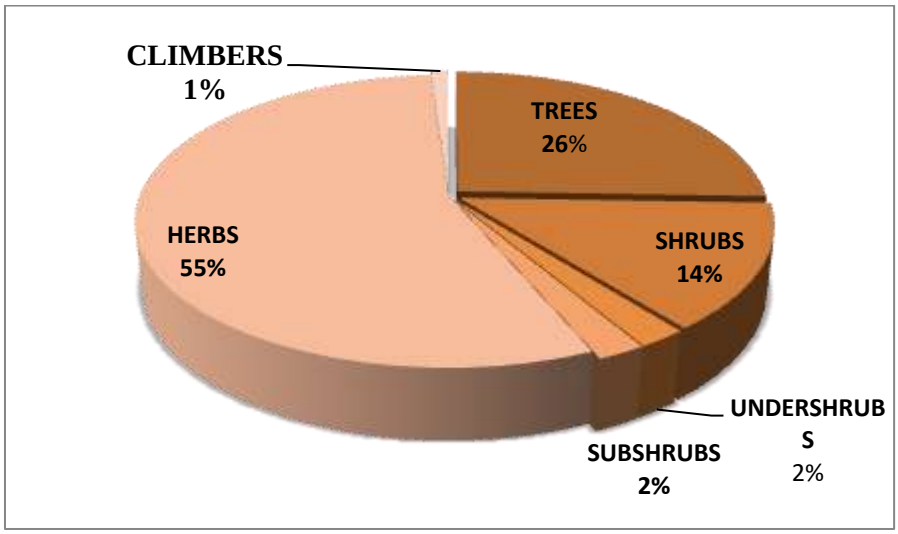

Figure 1: Floristic Diversity of Moka in different hierarchy

Table 1: Checklist of flowering plants of Moka, Ballari district..

Sl. no.	Name of the plant	Family	Habit
1.	*Abutilon indica* (L.)Sweet	Malvaceae	Shrub
2.	*Acalypha indica* L.	Euphorbiaceae	Herb
3.	*Achyranthus aspera* L.	Amaranthaceae	Undershrub
4.	*Ageratum conyzoides* L.	Asteraceae	Herb
5.	*Alternanthera paronochioides* A.St.-Hil.	Amaranthaceae	Herb
6.	*Andrographis paniculata* (Burm.fil.) Nees	Acanthaceae	Herb
7.	*Amaranthus hypochondiacus* L.	Amaranthaceae	Herb
8.	*Amberboa ramosa* (Roxb.) Jafri	Asteraceae	Herb
9.	*Azadirachta indica* A. Juss.	Meliaceae	Tree
10.	*Bauhinia purpurea* L.	Fabaceae	Tree
11.	*Anisomeles indica* (L.) Kuntze	Lamiaceae	Shrub
12.	*Blumea lacera* (Burm.f.) DC.	Asteraceae	Herb
13.	*Calotropis gigantea* (L.) Drynd.	Apocynaceae	Shrub
14.	*Calotropis procera* W.T.Aiton	Apocynaceae	Medium tree
15.	*Capparis zeylanica* L.	Capparaceae	Shrub
16	*Calyptocarpus vialis* Less	Asteraceae	Herb
17.	*Celosia argentea* var. Cristata	Amaranthaceae	Herb
18	*Chloris barbata* Sw.	Poaceae	Herb

19.	*Cynodon dactylon* (l.) Pers.	Poaceae	Herb
20.	*Cyanthillium cinereum* (L.) H.Rob.	Asteraceae	Herb
21.	*Chrozophora rottleri* (Geiseler) A. Juss. Ex Spreng.	Euphorbiaceae	Herb
22.	*Cleome monophylla* L.	Cleomaceae	Herb
23.	*Dactyloctenium aegyptium* (L.) Willd.	Poaceae	Herb
24.	*Euphorbia hirta* L.	Euphorbiaceae	Herb
25.	*Euphorbia thymifolia* L.	Euphorbiaceae	Herb
26.	*Digera muricata* (L.) Mart.	Amaranthaceae	Herb
27.	*Ficus benghalensis* L.	Moraceae	Tree
28.	*Derris indica*	Fabaceae	Tree
29.	*Heliotropium ovalifoilum*	Boragiaceae	Herb
30.	*Hyptis suaveolens* (L.)Pot.	Lamiaceae	Herb
31.	*Hygrophila auriculata* (Schumach.) Heine	Acanthaceae	Subshrub
32.	*Ipomoea cairica* (L.) Sweet	Convolvulaceae	Climber
33.	*Jetropha glandulifera* Roxb.		
34.	*Ipomoea obscura* (L.) Ker Gawler	Convolvulaceae	Climber
35.	*Lactuca serriola* L.	Asteraceae	Herb
36.	*Lantana camera* L.	Verbenaceae	Shrub
37.	*Lepidogathis cristata* Willd.	Acanthaceae	Herb
38.	*Leucaena leucocephala* (Lam).de Wit	Fabaceae	Tree
39.	*Malvastrum coromandelianum* (L.) Garke	Malvaceae	Herb
40.	*Mangifera indica* L.	Anacardiaceae	Tree
41.	*Merremia tridentate*	Convolvulaceae	Trailer
42.	*Millingtonia hortensis* L.f.	Bignonaceae	Tree
43.	*Oldenlandia corymbosa* L.	Rubiaceae	Herb
44.	*Oxalis corniculata* L.	Oxalidaceae	Creeper
45.	*Ocimum bacilicum* L.	Lamiaceae	Shrub
46.	*Pedalium murex* L.	Pedaliaceae	Shrub
47.	*Parthenium hysterophrus* L.	Asteraceae	Herb
48.	*Passiflora foetida* L.	Passifloraceae	Herb
49.	*Pantanema indicum* (L.)	Asteraceae	Herb
50.	*Peristrophe bicalyculata* (Retz.) Nees	Acanthaceae	Herb
51.	*Pithocellobium dulse* (Roxb.) Benth.	Fabaceae	Tree
52.	*Pheltophorum pterocarpum* (DC). Backer Ex.K.Heyne	Fabaceae	Tree
53.	*Prosopis juliflora* (Sw.)DC	Fabaceae	Shrub
54.	*Prosopis cineraria* (L.) Druce.	Fabaceae	Tree
55.	*Portulaca oleracea*	Portulaceae	Herb
56.	*Phyllanthus uranaria* L.	Phyllanthaceae	Shrub
57.	*Physalia minima* L.	Solanaceae	Herb
58.	*Plumeria alba* L.	Apocynaceae	Tree
59.	*Rauvolfia tetraphylla* L.	Apocynaceae	Shrub
60.	*Schouwia purpurea* (Forssk.) Schweinf.	Brassicaceae	Herb

61.	*Setaria verticillata* (L.) P. Beauv	Poaceae	Herb
62.	*Solanum nigrum* L.	Solanaceae	Herb
63.	*Solanum virginianum* L.	Solanaceae	Herb
64.	*Sonchus oleraceus* L.	Asteraceae	Herb
65.	*Syzygium cumini* (L.)Skeels.	Myrtaceae	Tree
66.	*Tectona grandis* L.	Verbenaceae	Tree
67.	*Tamarindus indica* L	Fabaceae	Tree
68.	*Tinospora cordifolia* (Lour.) Merr	Menispermaceae	Climber
69.	*Spermacoce pusilla* Wall.	Rubiaceae	Herb
70.	*Senna auriculata* (L.) Roxb.	Fabaceae	Shrub
71	*Stemodia viscosa* Roxb.	Plantaginaceae	Herb
72.	*Tephrosia purpurea* (L.) Pers	Fabaceae	Subshrub
73.	*Thespia populnea* (L.) Sol.ex correa	Malvaceae	Tree
74.	*Thevetia peruviana* (Pers.) K. Schum.	Apocynaceae	Tree
75.	*Tribulus terrestris* L.	Zygophyllaceae	Herb
76.	*Tridax procumbens* L.	Asteraceae	Herb
77.	*Tylophora indica* (Burm.f.) Merr.	Apocynaceae	Climber
78.	*Typha angustata* Bory & Chaub.	Typhaceae	Herb
79.	*Vauchelia nilotica* (L.) P.J.H Hurter and Mabb.	Fabaceae	Tree
80.	*Xanthium strumarium* L.	Asteraceae	Herb
81.	*Zizyphus mauritiana* jujube.Mill.	Rhamaceae	Tree

CONCLUSION

Moka is a semi-arid area, a small village in Ballari district is particularly an underexplored area which is composed of thorny and shrubby plants which have adapted to harsh climatic conditions and grow. Approximately 81 plant species were collected of which majority were herbs, followed by shrubs and trees. Most of the species as per the literature survey produce high amount of secondary metabolites may be their property of restraining high temperature and low moisture. This property makes them potent medicinal plants. Thus, the present report provides the floristic composition of Moka village which will be helpful for botanists, naturalists, pharmaceutical industries etc. Most of the plants may prove to be potent members as pharmaceutics, neutraceutical and medicinally important plants.

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