THE BOTANY OF BAILADILLA, BASTAR STATE, M. P.

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ABSTRACT

The paper gives an account of the botanical tour undertaken recently in the Bailadilla area of Bastar State, Madhya Pradesh. A list of 109 species of flowering plants not previously recorded for the area (Mooney 1942) is included.

INTRODUCTION

The former Bastar State of Madhya Pradesh has received very little attention from the botanical point of view. The region lies in the far interior in a tribal area and on account of the poor lines of communication and the presence of tigers and other wild animals, has remained largely unexplored.

Located at the intersection of the floristically interesting areas of the States of Uttar Pradesh, Bihar, Orissa and of Peninsular India, the territory has rich promise of interesting floristic elements as was visualised by Haines as far back as 1916. Mooney undertook five exploration tours during the year 1936-40 and recorded his observations in a paper published in 1942. He did not have, however, all the facilities for reaching the inner pockets and he suggested that a fuller investigation of the territory would produce more fruitful results. In recent years Subramanyam and Henry (1966) have published an account of the vascular plants of Bastar.

The present account is based on a visit to Bailadilla by the author in Feb. 1963 when he accompanied Dr. G. Panigrah for the collection of plants for the herbarium of the Botanical Survey of India.

TOPOGRAPHY

Bailadilla lies between 18.30 & 19.5° North and 81.10 & 81.15° East. Dantewara is the nearest town from Bailadilla and is located at a distance of about 70 km.

The entire area lies in the northern catchment of the Godavari River. Bailadilla hill range is the highest in the tract with the highest peak being 1775 m above s.l. The range extends for about 72 km in length from North to South of Indravati River. The width of the range is hardly 8 km. This rises sharply on all sides and attains an altitude of 1160 m for a major part of its length.

GEOLOGY

Geologically, the rocks are of Dharwar age and are considered equivalent to the iron ore series of Singhbhum.

The laminated hematite quartzite constitutes a conspicuous horizon. Nodules of hematite are found in abundance at the foot-hills and the stream beds, which sometimes show rich deposits of iron ore. The Bailadilla range contains vast resources of rich iron ore.

RAINFALL

Bailadilla receives annually about 279 mm rainfall during the year as recorded by Indian Bureau of Mines. Highest precipitation is from June to September every year with an almost dry season between December and April.

DRAINAGE

The northern two-thirds of the range drain into the Indravati through its tributaries Danaki and Sankam. Southern one-third drains into Sabi through Mallinger. It is extremely hot and intolerable during the summer months, March to June.

SOIL

Mostly the soil is red because of the presence of granite, quartzite, hematite and shales, etc. The soil colour changes from brown, yellow to grey or even black owing to variations in the iron contents and imperfect hydration as a result of imperfect drainage.

VEGETATION

The vegetation of the Bastanar and Chandanar forests which are at the foot-hills of the Bailadilla range closely resembles that of dry mixed forests. Tectona occurs at the lower elevation but is absent at higher elevation and at Bailadilla.

The main components of this area among the trees are Cochlospermum gossypium, Pierocarpus
The mixed evergreen forest which presents a compact canopy is dominated by *T. tomentosa*, *Xyilla xylocarpa*, *Pterocarpus marsupium*, *Ficus semicordata*, *Emblica officinalis*, bamboos like *Oxytenanthera nigroclita* and *Cephalostachyum perigracile* and *Calamus* spp. which occur rather profusely in such situations. During April-June very strong winds blow and cyclonic storms also occur with the result that many trees are uprooted. The trees like *Emblica officinalis*, *Rhus paniculatus*, *Terminalia arjuna*, *T. chebula*, *Xyilla xylocarpa*, etc. which survive have their growth retarded. They are seen to be stunted and charred and bent on one side.

The grassland vegetation on the exposed hill tops is dominated by the perennial grass, *Arundinella setosa* associated with *Themeda diandra*, *Cymbopogon fultus* and others. This is interspersed with stunted trees of *Terminalia tomentosa*, *Phoenix aculis*, *Emblica officinalis*, *Buchanania lanzan*, *Zizyphus* spp. and *Acacia* spp.

* Cajanus cajan*, *Disophylla quadrifolia*, *Vicia indica*, *Polycarpaea corymbosa*, *Knoxia corymbosa* and a number of species of the Acanthaceae are among the herbs which colour the grassland vegetation.

Tree ferns, *Cyathea spinulosa* and *Alsophila glabra* along with other ferns like *Angiopteris exsecta*, *Sphenomeris chusana* and *Diplazium esculentum* and other flowering plants, *Melastoma malabathricum*, *Strobilanthes callosus*, *S. teetulatus* and *Abutilon* spp. form a thick cover in swampy areas along the perennial 'nalis' and bank of streams flowing through grasslands near patches of evergreen forests. The tree fern does not seem to occur below 1000 m.

Among the climbers met with are *Clematis wightiana*, *Hiptage benghalensis*, *Rubia cordifolia*, *Pentatropis spiralis*, *Gnetum ula* and * Dioscorea wightii*. *Cyanotis arachnoidea* was found only at the highest peak over barren rocks.

**NOTEWORTHY FEATURES**

*Pennisetum alopecuroides* and the genus itself is absent from Bailadilla as reported by Mooney, but *P. hohenackeri* was found to occur at the foot-hills of Bailadilla range after Gudem where it is plentiful.

*Ficus semicordata*, *F. virens* and *F. tinctoria* subsp. *parasitica* which are said to be confined to the foot-hills too have been collected at Bailadilla proper at altitude above 1000 m.

*Desmodium triguestrum*, *Elephantopus scaber*, *Andrographis paniculata* are also quite common at Bailadilla and Mallinger valley which is above 650 m altitude. They are not confined to lower altitudes below 650 m as stated by Mooney.

It is also interesting to note the presence of *Cochlospermum gossypium*, *Meliosma simplicifolia*, *Hydrolea zeylanica* and *Tenagocharis latifolia*, belonging to four separate families, reported for the first time from that area.

The voucher specimens have been deposited in the herbarium of the Botanical Survey of India Central Circle, Allahabad.
ENNUMERATION

Note: The collectors’ names for all the field numbers given in the enumeration are G. Panigrahi and C. M. Arora.

RANUNCULACEAE

Clematis wightiana Wall.
Scarce, flowering, 6867.

BIXACEAE

Cochlospermum gossypium (L.) DC.
Hindi: Galgal.

MALVACEAE

Sida cordata (Burm. f.) Van Borssum
Along dried up nolas and waste lands. Not common, flowering. 6988.

TILIACEAE

Grewia barberi J. R. Drummond

BURSERACEAE

Garuga pinuata Roxb.
On hill slopes. Fairly abundant, flowering. 1106.

MELIACEAE

Cipadessa baccifera (Roth) Miq.
In evergreen forest. Scarce, flowering & fruiting, 6765, 6978.

SABIACEAE

Meliosma simplicifolia Waip.
On slopes. Scarce, fruiting. 6974.

LEGUMINOSAE

Acacia torta (Roxb.) Craib
Climbing on ‘sal’ and other trees on hill slopes. Scarce, fruiting, 5905, 1082.

Atylosia volubilis Gamble
Climbing on bushes. Scarce, flowering, 1004.

Bauhinia variegata L.
On foot hills. Fairly common, flowering, 1105.

Desmodium polycarpum DC.
Near nolas. Scarce, flowering, 1048.

Phaseolus adenanthus G. F. Meyer
Scarce, flowering, 1099.

Shorea vestita (W. & A.) var. densiflora Bak.
In evergreen forest. Scarce, fruiting, 6969, 6995.

COMBRETACEAE

Calycophila floribunda Lam.
Climbing on bushes in mixed forest. Common, flowering. 1101.

C. nanum Buch.-Ham.
On rocky mountain amidst grasses. Fairly common, flowering. 6949.

Terminalia arjuna W. & A.
Abundant, flowering, 6943.

LYTHRACEAE

Ammannia cordata W. & A.
Rooting in sandy loam of river bank. Scarce, fruiting, 6774.

A. multiflora Roxb.
In sandy loam of river bank. Scarce, flowering & fruiting, 6814.

Rotala indica (Willd.) Kochne
Rooting in wet places near river banks. Scarce, flowering & fruiting. 6779.

UMBELLIFERAE

Pimpinella heynana Wall.
Scarce, flowering & fruiting. 6787.

RUBIACEAE

Gardenia latifolia Ait.
Fairly abundant. fruiting. 1019. Wood used for making toys.

Hedyotis pinifolia Wall.
Scarce, flowering, 6777.

Oldenlandia umbellata L.
On road sides and in sandy loam of river banks. Fairly abundant, flowering & fruiting, 6771, 6938.

Pavetta indica L. var. tomentosa (Roxb.) Hook. f.
Fairly abundant, flowering, 1011.

Wendlandia thyroides (R. & S.) Scud.
On margins of hill forest. Fairly abundant, flowering. 1098.

COMPOSITAE

Adenostemma lavenia (L.) O. Kze. var. rugosa (Hook.) Ram Lal

Blumea clarkii Hook. f.
Along nolas. Common, flowering, 6889.

B. eriantha DC.
A shade-loving herb in sandy soil. Scarce, flowering, 6866.

B. fistulosa (Roxb.) Kurz
Along nolas. Fairly abundant, flowering, 6789, 6892.

B. jacquemontii Hook. f.
On rocky soil. Fairly abundant. flowering. 6953.

B. lacer DC.
Along dried nolas, Common, flowering, 6789.
Blumea mollis (Don) Merrill
On slopes in open and on road sides. Abundant, flowering, 6756.

Erechtites valeriaeifolia DC.

Gnaphalium hypoleucum DC.
On open slopes. Common, flowering, 6862.

HYDRARGYRACEAE

Ardisia pauciflora Heyne
Near nalas. Abundant, flowering, 6925.

ASCLEPIADACEAE

Pontotropis spiralis (Forsk.) Decne.
On the highest top of the Bailadilla hills. Rare, fruiting, 6988.

GENTIANACEAE

Exacum perrottetii Grisch.

Swertia corymbosa Wt.
Near stream. Common, fruiting, 6851.

HYDROPHYLLACEAE

Hydroca zeylanica (L.) Vahl
In sandy loam. Rare, flowering, 6779.

Boraginaceae

Cordia grandis Roxb.
On road sides. Fairly abundant, fruiting, 6955.

Cynoglossum wallichii G. Don
On slopes in mixed evergreen forest. Scarce, flowering, 6998.

C. zeylanicum (Wall.) Thumb. ex Lhdm.
On hill slopes. Abundant, fruiting, 1025.

Rotala aquatica Lour.
Rooting in the sandy bed amidst gnissic rock boulders. Fairly abundant, flowering, 6766.

CONVOLVULACEAE

Argyria involucrata C. B. Clarke
Climbing on bushes. Scarce, fruiting, 6820.

Ipomoea aquatica Forsk.
Rooting at nodes along nalas in damp sandy soil. Common, flowering, 6993.

Merremia vitifolia (Burm. f.) Hall.
In mixed forest. Fairly abundant, flowering, 1108.

LENTIBULARIACEAE

Utricularia exoleta Br.
A floating plant in water. Common, flowering, 1046.

BIGNONIACEAE

Heterophragma quadriloculare K. Schum.
In mixed evergreen forest. Common, flowering, 1031.

ACANTHACEAE

Cardanthera verticillata C. B. Clarke
In sandy soil near river banks. Scarce, flowering, 6776.

Diplerta roxburghiana Nees
On the margins of evergreen forest. Very rare, flowering, 6911.

Dyschoriste vagans O. Kze.
In dry mixed forest. Fairly abundant, flowering, 6798, 6812, 1080.

Eranthemum purpurascens Nees
In dry mixed forest on slopes. Fairly abundant, flowering, 6794, 1033.

Justicea peploides T. Anders.
On hill slopes. Abundant, flowering, 6860.

Nilgirianthus reticulatus (Stapf) Brem.
On rocky slopes. Common, flowering, 6932.

Rhinacanthus nasuta (L.) Kurz
In the bamboo mixed forest. Common, flowering, 1076.

Runia pectinata (L.) Nees
On rocky slopes. Fairly abundant, flowering, 6801, 6894, 6944.

Strobilanthes callosus Nees var. hispida C. B. Clarke
Near patches of evergreen forest. Abundant, flowering & fruiting, 6844.

VERBENACEAE

Clerodendrum viscosum Vent.
On the margins of forest. Abundant, flowering, 1014, 1070.

LABIATAE

Colcus barbatus Bth.
Near edges of evergreen forest. Fairly abundant, flowering, 6907.

Leucas Ianata Bth. var. collina Prain
On slopes under shade. Abundant, flowering, 6835, 6898.

AMARANTHACEAE

Aerva sanguinolenta (L.) Bl.
On rocky slopes. Common, flowering, 6950.

POLYGONACEAE

Polygonum chinesc L. var. ovalifolia Meissn.
Near nalas on slopes. Abundant, flowering, 6834.
Polygonum glabrum Willd.  
On sandy alluvial banks of river. Fairly abundant, flowering, 6762.

LORANTHACEAE

Dendrophthoe falcata (L. f.) Etting.  
Hemiparasite on trees. Common, flowering, 1056.

Taxillus tomentosus (Roth) Tieghem  
Hemiparasite on trees. Scarce, flowering, ABD.

EUPHORBIACEAE

Euphorbia neriifolia L.  
On the edges of evergreen forest towards drier aspects. Common, flowering, 6906.

Phyllanthus debilis Buch.-Ham.  
Amidst grasses on slopes. Fairly abundant, flowering & fruiting, 6899, 6947, 6804.

URTICACEAE

Ficus semicordata Buch.-Ham. ex Sm.  
On hill slopes. Abundant, fruiting, 6962.

F. tinctoria Forst. f. subsp. parasitica Corner var. parasitica  
On hill slopes. Scarce, fruiting, 6818.

F. virica Ait.  
On hill slopes. Abundant, fruiting, 1077.

F. microcarpa L. f.  
The smallest in size among Ficus species. Among on slopes. Common, 1088.

Tragia involucrata L.  
Climbing on bushes on slopes. Common, fruiting, 6994.

ORCHIDACEAE

Dendrobium denneanum Kerr  
Epiphyte. Scarce, fruiting, 1034.

D. herbaceum Lindl.  
Epiphyte forming big clusters. Abundant, flowering, 6881.

D. nobile Lindl.  
Epiphyte. Scarce, fruiting, 1023.

Geodorum sp.  
Terrestrial near moist places. Scarce, fruiting, 6940.

Oberonia falcata Hook. f.  
Epiphyte. Scarce, fruiting, 6810.

Rynchochostis retusa (L.) Bl.  
Epiphyte. Fairly abundant, in vegetative, 6983.

Saccalobium sp.  
Epiphyte. Fairly abundant, flowering & fruiting, 6802.

Vanda patavilosa Lindl.  
Epiphyte. Abundant, fruiting, 6823.

Dioscoreaceae

Dioscorea anguina Roxb.  
Climbing on bushes and trees on slopes. Fairly abundant, fruiting, 1073.

D. wightii Hook. f.  
On bushes and trees in dry mixed forest on slopes. Abundant, fruiting, 6957.

Liliaceae

Polygonatum oppositifolium Royle  
On slopes. Scarce, fruiting, 1013.

Smilax prolifera Roxb.  
On trees in mixed evergreen forest. Abundant, flowering, 6869, 6897.  
Stem used for cleaning teeth.

S. zeylanica L.  
On trees and bushes in mixed evergreen forest. Fairly abundant, fruiting, 6819.  
Stem used for cleaning teeth.

Commelinaceae

Commelina suffruticoso Bl.  
In humous forest floor. Common, in vegetative, 6871.

Limnocharitaceae

Tenagocharis latifolia (D. Don) Butchen.  
On slopes in mixed evergreen forest. Scarce, flowering, 6811.

Eriocaulaceae

Eriocaulon cuspidatum Dalz.  
In sandy wet soil of running stream. Common, flowering, 6864.

F. truncatum Buch.-Ham.  
In sandy wet soil. Common, flowering, 6778.

Cyperaceae

Carex baccana Nees  
Under shade near nalas. Common, fruiting, 6827.

Cyperus rotundus L.  
In the crevices of rock boulders. Abundant, flowering, 6769.

Gramineae

Apluda mutica L.  
In dry mixed forest. Fairly abundant, flowering, 6797.

Aristida depressa Retz.  
On road sides and in forest. Fairly abundant, flowering, 1110.

A. setacea Retz.  
In rock crevices. Common, flowering, 6767.
Arundineja bolcoides (Kunth) Trin.
Near edges of water. Fairly abundant, flowering.

Coelachne simplicauscula (W. & A.) Munro ex Benth.
Rooting in between pebbles in sandy stream. Flowering, 1044.

Dichanthium annulatum (Forsk.) Stapf
In the alluvial soil. Common, flowering, 6768, 6803, 6805.

Near streams. Scarce, flowering, 1090.

Echinochloa colonum (L.) Link.
Near streams. Abundant, flowering, 6772.

Eragrostis coarctata Stapf
On sandy mounds in open ground. Common, flowering, 7000.

E. gangetica (Roxb.) Steud.
Along nalas. Scarce, flowering, 6891.

Eulaliopsis bisata (Retz.) C. E. Hubb.
On hill tops and slopes. Common, flowering, 6986.

Isielema laxum Hack.
Forming a mat on forest floor. Scarce, flowering, 1020.

Isachne disse Trin.
On rocky slopes near stream. Abundant, fruiting, A x A.

Ischaemum indicum (Houtt.) Merrill
Along nalas as well as on open hillocks. Abundant, flowering, 6887, 6888.

Microstegium petiolare (Trin.) Bor
Near edges of stream. Common, flowering, 1009.

Pennisetum hohenackeri Hochst ex Steud.
In dry-mixed forests on slopes. Abundant, flowering, 1111.

Setaria glauca (L.) P. Beauv.

S. plicata (Lamk.) T. Cooke
Near nalas. Scarce, fruiting, 6934.

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