BULL. BOT. SURV. INDIA
Vol. 26, Nos. 1 & 2 : pp. 133-141, 1984

ON A COLLECTION OF PLANTS FROM NETARHAT PLATEAUX, PALAMAU DISTRICT, BIHAR — A CRITICAL AREA OF BOTANICAL IMPORTANCE

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ABSTRACT

102 plant species collected from Netarhat Plateaux, Bihar by the present authors is apart from its enumeration, an addition to Haines' record (1921) from Netarhat, mention of which was made by H. F. Mooney (1944). And since the region is phytogeographically important, the paper also deserves its utility from conservation point of view.

INTRODUCTION

The Netarhat Plateaux is interesting for its rich Sal forest and scrub jungle. The soil is mainly laterite mixed with occasional sandy loam and humus which is the formation of the subsoil of the plateaux. The natural beauty and aesthetic value are further enhanced with chir plantation. Conifers from the avenue trees on either side of the road right from the Ghat to the top of the plateaux. Netarhat has a general altitude of 1100-1230 m. The main plateaux is on the border of Ranchi and Palamau district with highest point at 1230 m. It is on the whole rather poor in tree species other than "Sal" which usually forms the major part. This Sal association is climatic climax of the plateaux. The forest is situated on higher elevations with rugged ghats forming the characteristic feature of the plateaux and are some of the best botanical ground in the area though much of the plateaux itself is covered by reserve forest.

A total of 57 families, 119 genera containing 133 species of Haines' record from the area were mentioned in Mooney's paper (1944). 102 species distributed under 87 genera and 41 families are now added as new records to the flora of Netarhat Plateaux. Primarily the special emphasis of this paper is additions to Haines' record from the area on the one hand and secondarily the list of collections of plants by the present authors from the area was not mentioned in earlier publications.

Netarhat is the best forested of all the plateaux in the district. Since the occurrence of Bauxite are of very good quality, there is every possibility of large scale quarrying. Hence there is a necessity for conservation of an area which is critically important from the phytogeographical point of view. Many of the plants in the area are with economic utility and cultivation by villagers is a regular feature and hence the entire region should be recognised in the context of ecological importance. The wild plants face a lot of competition due to recent immigrant and this factor is to be taken into account from the point of conservation. The present list of additions, though there are many influx of weeds, indicates the present state of damage to the ecology of an area which is phytogeographically important, recognised by Mooney as early as 1944.

The sequences of the families enumerated

Date of receipt : 17.5.83. Date of acceptance : 23.11.84

are as in Haines' flora. Nomenclature has been brought upto-date and Haines' flora has been cited. The field numbers of the collections are also mentioned.

It is hoped that the present list will help to fill up the void in the botanical knowledge of this region.

CAPPARACEAE

Cleome monophylla Linn. Sp. Pl. 672. 1753 ; Fl. Brit. Ind. 1 : 168. 1872 ; Haines, Bot. Bih. Or. 1 : 30. 1961 (Reprint).

Near river Koil, Oct., 1981. *Manna & Samaddar* 1075.

POLYGALACEAE

Polygala furcata Royle, 111. t. 19B. 1834. *P. triphylla* var. *glaucescens* Bennett, Fl. Brit. Ind. 1 : 201. 1872.

1 km towards south of hospital, Sept., 1981. *Manna & Samaddar* 972.

P. persicariaefolia DC. Prodr. 1 : 326. 1824 ; Fl. Brit. Ind. 1 : 202. 1872.

Near PWD rest house, Sept., 1981. *Manna & Samaddar* 999.

AIZOACEAE

Mollugo nudicaulis Lamk. Encl. 4 : 234. 1797 ; Fl. Brit. Ind. 2 : 664. 1879 ; Jeffrey, Aizoaceae in Fl. Trop. East Africa 17. 1961.

3 km away from forest rest house, Oct., 1981. *Manna & Samaddar* 1289.

MALVACEAE

Kydia calycina Roxb. Hort. Beng. 50, Fl. Brit. Ind. 1 : 348. 1874 ; Haines, Bot. Bih. Or. 1 : 76. 1961 (Reprint).

1 km away towards north of bus stand, Oct., 1981. *Manna & Samaddar* 1091.

Thespesia lampus (Cav.) Dalz. & Gibs. Bombay Fl. 19. 1861 ; Fl. Brit. Ind. 1 : 345. 1875 var. **longisepala** Boiss, Blumea 14(1) : 118. 1966.

On way to Chatakpur, Sept., 1981. *Manna & Samaddar* 1018.

Urena lobata Linn. Sp. Pl. 692. 1753 ; Fl. Brit. Ind. 1 : 329. 1874 ; Haines, Bot. Bih. Or. 3 : 65. 1961 (Reprint).

Near forest rest house, Sept., 1981. *Manna & Samaddar* 930.

TILIACEAE

Triumfetta rhomboidea Jacq. Enum. Pl. Craib. 22. 1760 ; Fl. Brit. Ind. 1 : 395. 1874 ; Haines, Bot. Bih. Or. 1 : 89. 1961 (Reprint).

Pine plantation near forest rest house, Sept., 1981. *Manna & Samaddar* 911.

EUPHORBIACEAE

Glochidion tomentosum Dalz. in Kew Journ. Bot. 3 : 38. 1851 ; Fl. Brit. Ind. 5 : 309. 1887 ; Woodr. in Journ. Bombay Nat. Hist. Soc. 12 : 370. 1899.

3 km away from forest rest house, Oct., 1981. *Manna & Samaddar* 1290.

Phyllanthus reticulatus Poir. in Lamk. Encycl. 5 : 298. 1804 (reticulata) ; Fl. Brit. Ind. 5 : 288. 1887. *Kirganelia reticulata* (Poir.) Baill, Etudes Gen. Euphorb. 613. 1858 ; Haines, Bot. Bih. Or. 1 : 134. 1961 (Reprint).

Near Banari forest beat office, Oct., 1981. *Manna & Samaddar* 1067.

P. debilis Klein ex Willd. Sp. Pl. 4 : 582-583. 1804 ; Fl. Brit. Ind. 5 : 299. 1887 ; Haines, Bot. Bih. Or. 1 : 131. 1961 (Reprint).

On way to Chatakpur, Sept., 1981. *Manna & Samaddar* 1033.

OXALIDACEAE

Oxalis corniculata Linn. Sp. Pl. 435. 1753 ; Fl. Brit. Ind. 1 : 436. 1874 ; Haines, Bot. Bih. Or. 1 : 162. 1961 (Reprint).

1 km from forest rest house, Sept., 1981. *Manna & Samaddar* 906.

BALSAMINACEAE

Impatiens balsamina Linn. Sp. Pl. 938. 1753 ; Fl. Brit. Ind. 1 : 453. 1874 ; Haines, Bot. Bih. Or. 3 : 1291. 1961 (Reprint).

Near Talao filtering station, Sept., 1981. *Manna & Samaddar* 929.

MELIACEAE

Aphanamixis polystachya (Wall.) Parker, Ind. For. 57 : 486. 1931. *Aglaia polystachya*

Wall. in Roxb. Fl. Ind. 2 : 429. 1824. *Andarsonia rohituka* Roxb. Fl. Ind. 2 : 213. 1832. *Ammora rohituka* (Roxb.) Wight & Arn., Proc. 119. 1834 ; Fl. Brit. Ind. 1 : 559. 1875. *A. polystachya* (Wall.) J. Hooker & Jackson ex Craib, Fl. Siam. Enum. 1 : 260. 1926. Haines, Bot. Bih. Or. 1 : 185. 1961 (Reprint).

Near Talao filtering station, Sept., 1981. *Manna & Samaddar* 917.

VITACEAE

Leea edgeworthii Sant. Rec. Bot. Surv. Ind. 16 : 154. 1953. *L. aspera* Edgew. Trans. Linn. Soc. Lond. 20 : 36. 1841 (non Wall. 1824) ; Fl. Brit. Ind. 1 : 665. 1875 ; Haines, Bot. Bih. Or. 1 : 215. 1961 (Reprint).

Near PWD rest house, Sept., 1981. *Manna & Samaddar* 1004.

LEGUMINOSAE

Atylosia scarabaeoides (Linn.) Benth. in Miq. Pl. Jungh. 243. 1852 ; Fl. Brit. Ind. 2 : 215. 1878. *Dolichos scarabaeoides* Linn. Sp. Pl. 2 : 1020. 1753 ; Haines, Bot. Bih. Or. 3 : 1293. 1961 (Reprint).

On way to Banari, Sept., 1981. *Manna & Samaddar* 1044.

Bauhinia purpurea Linn. Sp. Pl. 375. 1753 ; Fl. Brit. Ind. 2 : 284. 1878 ; Haines, Bot. Bih. Or. 2 : 323. 1961 (Reprint).

Banari, Oct., 1981. *Manna & Samaddar* 1090.

B. retusa Ham. Roxb. Hort. Beng. 31. Fl. Ind. ii. 322 ; Fl. Brit. Ind. 2 : 279. 1878 ; Haines, Bot. Bih. Or. 2 : 324. 1961 (Reprint).

1 km towards south from hospital, Sept., 1981. *Manna & Samaddar* 955.

Cassia fistula Linn. Sp. Pl. 377. 1753 ; Kurz, For. Fl. Brit. Burma 1 : 391. 1877 ; Fl. Brit. Ind. 2 : 261. 1878 ; Haines, Bot. Bih. Or. 2 : 315. 1961 (Reprint).

3 km from forest rest house, Oct., 1981. *Manna & Samaddar* 1285.

C. mimosoides Linn. Sp. Pl. 379. 1753 ; Fl. Brit. Ind. 2 : 266. 1878 ; Haines, Bot. Bih. Or. 2 : 319. 1961 (Reprint). *C. angustissima* Lamk. Encl. 1 : 650. 1785.

Near Talao filtering station, Sept., 1981. *Manna & Samaddar* 923.

C. siamea Lamk. Encycl. 1 : 648. 1785 ; Fl. Brit. Ind. 2 : 264. 1878 ; Haines, Bot. Bih. Or. 2 : 317. 1961 (Reprint).

Near Talao filtering station, Oct., 1981. *Manna & Samaddar* 1095.

C. tora Linn. Sp. Pl. 376. 1753 ; Fl. Brit. Ind. 2 : 263. 1878 ; Haines, Bot. Bih. Or. 2 : 318. 1961 (Reprint).

Near hospital, Sept., 1981. *Manna & Samaddar* 1054.

Desmodium gangeticum (Linn.) DC. Prodr. 2 : 327. 1825 ; Fl. Brit. Ind. 2 : 168. 1876. [incl. var. *maculatum* (Linn.) Baker] ; Haines, Bot. Bih. Or. 2 : 276. 1961 (Reprint). *Hedysarum gangeticum* Linn. Sp. Pl. 746. 1753.

1 km from Tourist Bunglow, Sept., 1981. *Manna & Samaddar* 967.

D. triflorum (Linn.) DC. Prodr. 2 : 334. 1825 (exc. syn. *D. biflorum*) ; Fl. Brit. Ind. 2 : 173. 1876 ; Haines, Bot. Bih. Or. 2 : 276. 1961 (Reprint). *Hedysarum triflorum* Linn. Sp. Pl. 749. 1753.

1 km from hospital towards south, Sept., 1981. *Manna & Samaddar* 966.

Pongamia pinnata (Linn.) Pierre, Fl. For. Cochinch. Sub. t. 385. 1899. *P. glabra* Vent. Jard. Maln. t. 28 ; Fl. Brit. Ind. 2 : 240. 1876 ; Haines, Bot. Bih. Or. 2 : 313. 1961 (Reprint).

On way to 'Sunset point', Oct., 1981. *Manna & Samaddar* 1062.

COMBRETACEAE

Anogeissus latifolia (DC.) Wall. ex Fl. Sylv. t. 15. 1869 ; Fl. Brit. Ind. 2 : 450. 1878 ; Haines, Bot. Bih. Or. 2 : 370. 1961 (Reprint). *Conocarpus latifolia* Roxb. ex DC., Prodr. 3 : 17. 1828.

Near PWD rest house, Sept., 1981. *Manna & Samaddar* 1031.

Terminalia chebula (Gaertner) Retz., Obs. Bot. 5 : 31. 1788 ; Fl. Brit. Ind. 2 : 446. 1878 ; Haines, Bot. Bih. Or. 2 : 368. 1961 (Reprint). *Myrobalanus chebula* Gaertner, Fruct. 2 : 91, t. 97. 1791.

Near forest rest house, Sept., 1981. *Manna & Samaddar* 1040.

ONAGRACEAE

Ludwigia octovalvis (Jacq.) Raven, Kew Bull. 15. 476. 1962. *Jussiae suffruticosa* L. Sp. Pl. 388. 1753 ; Fl. Brit. Ind. 2 : 587. 1879 ; Haines, Bot. Bih. Or. 2 : 398. 1961 (Reprint).

Near river Koil, Oct., 1981. *Manna & Samaddar* 1069.

CUCURBITACEAE

Cucumis melo Linn. Sp. Pl. 1011. 1753 ; Fl. Brit. Ind. 2 : 620. 1879 ; Haines, Bot. Bih. Or. 2 : 410. 1961 (Reprint).

1 km from forest rest house, Sept., 1981. *Manna & Samaddar* 901A.

Momordica dioica Roxb. ex Willd. Sp. Pl. 4 : 605. 1805 ; Fl. Brit. Ind. 2 : 617. 1879 (excl. syn.) ; Chakrabarty, Rec. Bot. Surv. Ind. 17 : 91. 1959 ; Haines, Bot. Bih. Or. 2 : 412. 1961 (Reprint).

1 km from forest rest house, Sept., 1981. *Manna & Samaddar* 901B.

Mukia madraspatana (Linn.) M. Roem. Synop. Monogr. 2 : 47. 1846 ; Haines, Bot. Bih. Or. 2 : 408. 1961 (Reprint). *Cucumis madraspatana* Linn. Sp. Pl. 1012. 1753 ; *Mukia scabrella* (L.f.) Arn. J. Bot. (Hooker) 3 : 276. 1841 ; Fl. Brit. Ind. 2 : 623. *Melothria madraspatana* (Linn.) Cong. in A. & C. DC. ; Chakravarty, Monog. Indian Cucurbitaceae 141. 1959.

Near PWD rest house, Sept., 1981. *Manna & Samaddar* 1010.

RUBIACEAE

Borreria pusilla (Wall.) DC., Prodr. 4 : 543. 1830 ; Fl. Brit. Ind. 3 : 200. 1881 ; Haines, Bot. Bih. Or. 2 : 472. 1961 (Reprint). *Spermacoce stricta* Linn. f., Suppl. 120. 1781. *S. pussila* Wall. in Roxb., Fl. Ind. ed. Caney & Wall. 1 : 379. 1820. *S. brachyslema* R. Br. ex Bentham, Fl. Austral. 3 : 439. 1867. *Borreria stricta* (Linn. f.) & Schum. in Engl. & Prantl, Pflanzenfam. 4(4) : 143. 1891. *B. brachystema* (Bentham) Valiton Lorentz, Nova Ghinea 8 : 516. 1911.

1 km towards south of hospital, Sept., 1981. *Manna & Samaddar* 945.

Knoxia sumatrensis (Retz.) DC. Prodr. 4 : 569. 1830 ; Fl. Brit. Ind. 131. 1880 ; *Spermacoce sumatrensis* Retz. Observ. Bot. 4 : 25. 1786-87.

1 km towards south of hospital, Sept., 1981. *Manna & Samaddar* 963.

Richardia scabra Linn. Sp. Pl. 1 : 330. 1753 ; As a Gray Fl. N. Amer. 1(2) : 32. 1886. *R. brasiliensis* Gomez in Mem. Ipacac 31, 1801. *R. pilosa* Ruiz & Pav. Fl. Peru 3 : 50, t. 279b, 1802. *Richardsonia brasiliensis* Hayne Arzn. Gen. 8, t. 21, 1805. *R. pilosa* (Ruiz & Pav.) H.B.K. in Nov. Gen. Sp. 3 : 350, 1820. *R. scabra* St. Hil. in Pl. Us. Bras. 7, t. 8, 1824 ; DC. Prodr. 4 : 567, 1830.

Near Talao filtering station, Sept., 1981. *Manna & Samaddar* 925.

COMPOSITAE

Adensotemma lavenia (Linn.) O. Kuntze, Rev. Gen. Pl. 1 : 304. 1891. *A. viscosum* J. R. Forst. Char. Gen. Pl. 90. 1776 ; Fl. Brit. Ind. 3 : 242. 1881 proparte ; Haines, Bot. Bih. Or. 2 : 485. 1961 (Reprint).

Near Tourist Bunglow, Sept., 1981. *Manna & Samaddar* 984.

Ageratum conyzoides Linn. Sp. Pl. 839. 1753 ; Fl. Brit. Ind. 3 : 243. 1881 ; Haines, Bot. Bih. Or. 2 : 485. 1961 (Reprint).

Pine plantation near forest rest house, Sept., 1981. *Manna & Samaddar* 912.

Bidens pilosa Lour. Sp. Pl. 832. 1753 ; Fl. Brit. Ind. 3 : 309. 1881 (quoad var. *pilosa* ; excl. var. *bipinnata* Hook. f. and

decomposita Hook. f.) ; Haines, Bot. Bih. Or. 2 : 507. 1861 (Reprint).

Pine plantation near forest rest house, Sept., 1981. *Manna & Samaddar* 910.

Elephantopus scaber Linn. Sp. Pl. 814. 1753 ; Fl. Brit. Ind. 3 : 242. 1881 ; Haines, Bot. Bih. Or. 2 : 484. 1961 (Reprint).

Near forest rest house, Sept., 1981. *Manna & Samaddar* 913.

Guizotia abyssynica Cass. in Dict. Sc. Nat. 59, 248 ; Fl. Brit. Ind. 3 : 308. 1881 ; Haines, Bot. Bih. Or. 2 : 507. 1961 (Reprint).

Banari, Oct., 1981. *Manna & Samaddar* 1083.

Sonchus arvensis Linn. Sp. Pl. 793. 1753 ; Fl. Brit. Ind. 3 : 414. 1881 ; Haines, Bot. Bih. Or. 2 : 522. 1961 (Reprint).

Near PWD rest house, Sept., 1981. *Manna & Samaddar* 988.

Vernonia cinerea (Linn.) Less. Linnaea 4 : 291. 1829 ; Fl. Brit. Ind. 3 : 233. 1881 ; Haines, Bot. Bih. Or. 2 : 483. 1961 (Reprint).

Near Talao filtering station, Sept., 1981. *Manna & Samaddar* 941.

Xanthium strumarium Linn. Sp. Pl. 987. 1753 ; Fl. Brit. Ind. 3 : 303. 1881 ; Haines, Bot. Bih. Or. 2 : 502. 1961 (Reprint).

Near river Koel, Oct., 1981. *Manna & Samaddar* 1077.

BORAGINACEAE

Cynoglossum lanceolatum Forsk. Fl. Aegypt. Arb. 41. 1775 ; Fl. Brit. Ind. 4 : 156. 1883 ; Haines, Bot. Bih. Or. 2 : 610. 1961 (Reprint).

Near Pine plantation ½ km from forest rest house, Sept., 1981. *Manna & Samaddar* 927.

CONVOLVULACEAE

Ipomoea turbinata Lag. Gen. Sp. 10. 1816 ; Gunn in Proc. Ass. off. seed Analysts, N. America 59 : 116, 123, ff. 1-2, 1969 et in Brittonea 24 : 163, f 5, 1972 & Oza in Annals Arid Zone 14(1) : 53-56. 1975 ; Raizada in Suppl. Duthie's Fl. 164. 1976.

On way to Agricultural farm, Sept., 1981. *Manna & Samaddar* 1053.

I. cairica (Linn.) Sw. Hort. Brit. 287. 1827. *I. palmata* Forsk. Fl. Aegypt. Arab. 43. 1775 ; Fl. Brit. Ind. 4 : 214. 1883 ; Haines, Bot. Bih. Or. 2 : 630. 1961 (Reprint).

On way to Agricultural farm, Sept., 1981. *Manna & Samaddar* 1056.

Quamoclit vulgaris Chois. Coniolv. Or. 52 and in DC. Prodr. IX. 336. *Ipomoea quamoclit* Linn. Sp. Pl. 159. 1753 ; Fl. Brit. Ind. 4 : 199. 1883 ; Haines, Bot. Bih. Or. 2 : 620. 1961 (Reprint).

1 km towards south from hospital, Sept., 1981. *Manna & Samaddar* 961.

SOLANACEAE

Nicandra physalodes (Linn.) Gaertn. Fruct. 2 : 237. t. 131. f. 2 : 1791 ; Fl. Brit. Ind. 4 : 240. 1883 (Physalodes) ; Haines, Bot. Bih. Or. 2 : 637. 1961 (Reprint). *Atropa physalodes* Linn. Sp. Pl. 181. 1753.

Near Tourist Bunglow, Sept., 1981. *Manna & Samaddar* 987.

Physalis peruviana Linn. Sp. Pl. ed. 2, 1670. 1763 ; Fl. Brit. Ind. 4 : 238. 1883 ; Haines, Bot. Bih. Or. 2 : 637. 1961 (Reprint).

Banari, Oct., 1981. *Manna & Samaddar* 1089.

Physalis minima Linn. Sp. Pl. 183. 1753 ; Fl. Brit. Ind. 4 : 238. 1883 ; Haines, Bot. Bih. Or. 2 : 637. 1961 (Reprint).

Banari, Oct., 1981. *Manna & Samaddar* 1086.

Solanum nigrum Linn. Sp. Pl. 186. 1753 ; Fl. Brit. Ind. 4 : 229. 1883 ; Haines, Bot. Bih. Or. 2 : 640. 1961 (Reprint).

1 km from Netarhat bus stand, Oct., 1981. *Manna & Samaddar* 1092.

S. violaceum Ortega. Hort. Mart. Dec. 56. 1798 ; Fl. Brit. Ind. 4 : 234. 1883 ; *S. indicum* Auct. non Linn. : Wight,

lc. t. 346. 1840 ; Haines, Bot. Bih. Or. 2 : 642. 1961 (Reprint).

Banari, Oct., 1981. *Manna & Samaddar* 1082.

SCROPHULARIACEAE

Lindernia indica (Linn.) Kuntze, Rev. Gen. Plant. 462. 1891. *Dodartea indica* Linn. Sp. Pl. 883. 1753. *Lindenbergia polyantha* Royle ex Benth. Scroph. Ind. 22. 1835 ; Fl. Brit. Ind. 4 : 262. 1884 ; Haines, Bot. Bih. Or. 2 : 654. 1961 (Reprint).

Near river Koel, Oct., 1981. *Manna & Samaddar* 1074.

Mecardonia procumbens (Miller) Swan, South-east U. S. 1065, 1338. 1903. *Erinus procumbens* Miller, Gard. Dict. ed. 8, No. 6. 1768. *M. dianthera* (Sw.) Pennell in Proc. Acad. Nat. Sci. Philad. 98. 87. 1946. *Lindernia dianthera* Sw. Prodr. Veg. Ind. Occ. 92. 1788.

Near PWD rest house, Sept., 1981. *Manna & Samaddar* 992.

Herpestis chamaedryoides H.B.K., Nov. Gen. Sp. 2 : 369. 1818.

3 km from forest rest house, Oct., 1981. *Manna & Samaddar* 1286.

Sopubia delphinifolia (Linn.) Don, Gen. Syst. IV. 560 ; Fl. Brit. Ind. 4 : 302. 1884 ; Haines, Bot. Bih. Or. 2 : 669. 1961 (Reprint).

On way to Agricultural farm, Sept., 1981. *Manna & Samaddar* 1055.

BIGNONIACEAE

Tecoma stans (Linn.) Kunth in Hurb. Kunth & Bonpl. Nov. Gen. Spec. 3 : 144. 1819 ; *Bignonia stans* Linn., Sp. Pl. ed. 2, 817. 1753 ; Haines, Bot. Bih. Or. 2 : 685. 1961 (Reprint).

Near Talao filtering station, Sept., 1981. *Manna & Samaddar* 920.

MARTYNIACEAE

Martynia annua Linn. Sp. Pl. 618. 1753. *M. diandra* Glox., Obs. 14. t. 1 ; Fl. Brit. Ind. 4 : 386. 1884 ; Haines, Bot. Bih. Or. 2 : 694. 1961 (Reprint).

Near Banari forest beat office, Oct., 1981. *Manna & Samaddar* 1064.

ACANTHACEAE

Barleria cristata Linn. Sp. Pl. 636. 1753 ; Fl. Brit. Ind. 4 : 488. 1884 ; Haines, Bot. Bih. Or. 2 : 716. 1961 (Reprint).

Near Talao filtering station, Sept., 1981. *Manna & Samaddar* 918.

Dicliptera verticillata Forsk. *D. micrantha* Nees, Haines, Bot. Bih. Or. 2 : 732. 1961 (Reprint).

3 km from forest rest house, Oct., 1981. *Manna & Samaddar* 1288.

Justicia vahlii Roth. Nov. Pl. Sp. 14 : 1821 ; Fl. Brit. Ind. 4 : 538. 1885. *J. diffusa* Willd. var. *vahlii* Clarke, Haines, Bot. Bih. Or. 2 : 727. 1961 (Reprint).

On way to Agricultural farm, Sept., 1981. *Manna & Samaddar* 1047.

Thunbergia erecta T. Anders. Journ. Linn. Soc. 7 : 18. 1864. *Meyenia erecta* Benth. in Hook. f. Niger Fl. 476. 1849 ; Haines, Bot. Bih. Or. 2 : 699. 1961 (Reprint).

Cultivated. Near Talao filtering station, Sept., 1981. *Manna & Samaddar* 933.

VERBENACEAE

Clerodendrum serratum (Linn.) Spreng. Syst. 2 : 758. 1825 ; Fl. Brit. Ind. 4 : 592. 1885 ; Haines, Bot. Bih. Or. 2 : 757. 1961 (Reprint).

On way to Chatakpur, Sept., 1981. *Manna & Samaddar* 1004.

Holmskioldia sanjuinea Retz. Obs. Bot. VI. 31 ; Fl. Brit. Ind. 4 : 596. 1885 ; Haines, Bot. Bih. Or. 2 : 758. 1961 (Reprint).

On way to Tourist Bunglow, Sept., 1981. *Manna & Samaddar* 947.

Stachytarpheta urticifolia Dalz. & Gibb. Bomb. Sl. Supply. 68. (Linn.) Vahl, Enum. Pl. 1 : 206. 1804. *Verbena indica* Linn. Syst. Nat. ed. 10, 851. 1759 ; Fl. Brit. Ind. 4 : 564. 1885 ; Haines, Bot. Bih. Or. 2 : 741. 1961 (Reprint).

Near Talao filtering station, Sept., 1981. *Manna & Samaddar* 932.

Vitex negundo Linn. Sp. Pl. 638. 1753 ; Fl. Brit. Ind. 4 : 583. 1885 ; Haines, Bot. Bih. Or. 2 : 746. 1961 (Reprint).

Near river Koel, Oct., 1981. *Manna & Samaddar* 1073.

LABIATAE

Anisomeles indica (Linn.) Kuntze, Rev. Gen. Pl. 2 : 512 ; Haines, Bot. Bih. Or. 2 : 782. 1961 (Reprint).

Near forest rest house, Sept., 1981. *Manna & Samaddar* 926.

Leonitis nepetaefolia (Linn.) R. Br., Prodr. 504. 1810 ; *Phlomis nepetifolia* Linn., Sp. Pl. 586. 1753. Haines, Bot. Bih. Or. 2 : 789. 1961 (Reprint).

Near Chandwa, Sept., 1981. *Manna & Samaddar* 1058.

Leucas cephalotes (Roth.) Spreng. Syst. 2 : 743. 1825 ; Fl. Brit. Ind. 4 : 689. 1885 ; *Phlomis cephalotus* Roth. Nov. Pl. Sp. 262. 1821. Haines, Bot. Bih. Or. 2 : 787. 1961 (Reprint).

Near Chandwa, Sept., 1981. *Manna & Samaddar* 1059.

L. montana Spreng. Syst. ii. 742. *L. mollissima* Wall. Pl. As. Rar. 1 : 62. 1830 ; Fl. Brit. Ind. 4 : 682. 1885 ; Haines, Bot. Bih. Or. 2 : 785. 1961 (Reprint).

Pine plantation near forest rest house, Sept., 1981. *Manna & Samaddar* 909.

Salvia coccinea Juss. ex Mum. Comm. Soc. Reg. Sci. Gotting 1 : 86. t. 1. 1778 ; Fl. Brit. Ind. 4 : 656. 1885 ; Haines, Bot. Bih. Or. 3 : 1301. 1961 (Reprint).

Near forest rest house, Sept., 1981. *Manna & Samaddar* 924.

AMARANTHACEAE

Achyranthes aspera Linn. Sp. ed. 1 : 204. 1753 ; Fl. Brit. Ind. 4 : 730. 1885 ; Haines, Bot. Bih. Or. 2 : 805. 1961 (Reprint).

Near hospital, Sept., 1981. *Manna & Samaddar* 944.

Celosia argentea Linn. Sp. Pl. 1 : 205. 1753 ; Fl. Brit. Ind. 4 : 714. 1885 ; Haines, Bot. Bih. Or. 2 : 797. 1961 (Reprint).

3 km from forest rest house, Oct., 1981. *Manna & Samaddar* 1287.

POLYGONACEAE

Polygonum barbatum Linn. Sp. Pl. 362. 1753 ; Fl. Brit. Ind. 5 : 37. 1886 ; Haines, Bot. Bih. Or. 2 : 816. 1961 (Reprint).

Near Banari forest beat office, Oct., 1981. *Manna & Samaddar* 1065.

P. glabrum Willd., Sp. Pl. 2 :447. 1799 ; Fl. Brit. Ind. 5 : 34. 1886 ; Haines, Bot. Bih. Or. 2 : 814. 1961 (Reprint).

Near Talao filtering station, Sept., 1981. *Manna & Samaddar* 1057.

P. hydropiper var. **flacidum** Steward Contr. Gray. Herb. 88 : 59. 1930 ; *P. flacidum* auct., non Roxb. Haines, Bot. Bih. Or. 2 : 817. 1961 (Reprint).

Near Banari forest beat office, Oct., 1981. *Manna & Samaddar* 1068.

URTICACEAE

Boehmeria platyphylla D. Don, Prodr. 60. 1825 ; Fl. Brit. Ind. 5 : 578. 1888 (excl. var.) ; Haines, Bot. Bih. Or. 3 : 855. 1961 (Reprint).

On way to Chatakpur, Sept., 1981. *Manna & Samaddar* 1037.

FAGACEAE

Quercus incana Roxb. Hort. Beng. 113 ; Fl. Ind. iii. 642 ; Fl. Brit. Ind. 5 : 603. 1888.

Near bus stand, Sept., 1981. *Manna & Samaddar* 948.

ARACEAE

Arisaema tortuosum (Wall.) Chokt, Melatem. 1 : 17. 1832 ; Fl. Brit. Ind. 6 : 502. 1893 ; Haines, Bot. Bih. Or. 3 : 905. 1961 (Reprint) ; Chatterjee, Bull. Bot. Soc. Beng. 8 : 136. 1954. *Arun tortuosum* Wall. Pl. As. Rar. 2 : 10. 1830.

Near forest rest house, Sept., 1981. *Manna & Samaddar* 921.

GRAMINEAE

Arundinella pumila (Hochest) Steud. Syn. 1 : 114. 1854 ; *Acratherum pumilum* Hochest. ex. A. Rich. Jent. Fl. Abyss. 2 : 414. t. 100. 1851.

1 km towards south of hospital, Sept., 1981. *Manna & Samaddar* 969.

Eleusine indica (Linn.) Gaertn. Fruct. Sem. 1 : 8. 1789 ; Fl. Brit. Ind. 7 : 293. 1896 ; Haines, Bot. Bih. Or. 3 : 1305. 1961 (Reprint). *Cynosurus indicum* Linn. Sp. Pl. 72.

Near river Koel, Oct., 1981. *Manna & Samaddar* 1080.

Eragrostis nigra Nees ex Steud. Nom. Ed. II. 563, Syn. Gram. 267 : 8 ; Fl. Brit. Ind. 7 : 324. 1896 ; Haines, Bot. Bih. Or. 3 : 1305. 1961 (Reprint).

Near Talao filtering station, Sept., 1981. *Manna & Samaddar* 922.

Rytilix granularis (L.) Skeels, U. S. Dep. Agr. Bur. Pl. Indus. 282 : 20. 1913. *Cenchrus granularis* L. Mant. 2, App. 575. 1771. *Manisuris granularis* (L.) L. f. nov. Gram. Gen. 40. 1779 ; Fl. Brit. Ind. 7 : 159. 1896 ; *Hackelochloa granularis* (L.) O. Ktze. Rev. Gen. Pl. 2 : 776. 1891 ; Haines, Bot. Bih. Or. 3 : 1105. 1961 (Reprint).

Near PWD rest house, Sept., 1981. *Manna & Samaddar* 994.

Heteropogon contortus (Linn.) P. Beauv. ex Roem. & Schult. Syst. Veg. 2 : 836. 1817 ; *Andropogon contortus* Linn. Sp. Pl. 1045. 1753 ; Fl. Brit. Ind. 7 : 199. 1896 ; Haines, Bot. Bih. Or. 3 : 1088. 1961 (Reprint).

On way to Agricultural farm, Sept., 1981. *Manna & Samaddar* 1051.

Iseilema holei Haines, Bot. Bih. & Or. Pt. 5, 1055 (1924).

On way to Agricultural farm, Sept., 1981. *Manna & Samaddar* 1049.

Panicum auritum Presl. ex Nees, Agrost. Bras. 176. 1829.

On way to Chatakpur, Sept., 1981. *Manna & Samaddar* 1007.

Sacciolepis indica (Linn.) A. Chase, Proc. Biol. Soc. Wrsh. 21 : 8. 1908 ; *Aira indica* Sp. Pl. 1753. (In errate) as *A. spicata* Linn. Sp. Pl. 63. 1753 ; Haines, Bot. Bih. Or. 3 : 1036. 1961 (Reprint).

On way to Chatakpur, Sept., 1981. *Manna & Samaddar* 1021.

Setaria pumila (Poir.) Roem. & Schult. Syst. Veg. 2 : 891. 1817 ; *S. pallide-fusca* (Schum.) Stapf et Hubb. *S. glauca* auct. non (L.) P. Beauv.

On way to Chatakpur, Sept., 1981. *Manna & Samaddar* 1017.

Setaria tomentosa (Roxb.) Kunth. Rev. Gram. 1 : 47. 1829 ; *Panicum tomentosum* Roxb. Fl. Ind. ed. Carey & Wall. 1 : 303. 1820.

Near forest rest house, Sept., 1981. *Manna & Samaddar* 968.

COMMELINACEAE

Commelina benghalensis Linn. Sp. Pl. 41. 1753 ; Fl. Brit. Ind. 6 : 370. 1892 ; Fl. Upper Gangetic Plain 2 : 274 ; Haines, Bot. Bih. Or. 3 : 1125. 1961 (Reprint).

1 km towards south of hospital, Sept., 1981. *Manna & Samaddar* 968.

Cyanotis cristata (Linn.) Don, Prodr. Fl. Nep. 46 (1825). *C. cristata* Linn. Sp. Pl. 42. 1753 ; Fl. Brit. Ind. 6 : 385. 1892 ; Haines, Bot. Bih. Or. 3 : 1130. 1961 (Reprint).

1 km towards south of hospital, Sept., 1981. *Manna & Samaddar* 970.

Murdannia nudiflora (Linn.) Brenan, Kew Bull. 189 (1952). *Aneilema nudiflora* (Linn.) Wall. ; List 182. No. 5224 (1830) ; Fl. Brit. Ind. 6 : 378. 1892 ; Haines, Bot. Bih. Or. 3 : 1128. 1961 (Reprint).

1 km towards south of hospital, Sept., 1981. *Manna & Samaddar* 965.

SMILACACEAE

Smilax macrophylla Roxb. Fl. Ind. ed. Carey 3 : 796. 1832 ; Fl. Brit. Ind. 6 : 310. 1892 ; FUGP. 3 : 260 ; Koyama in Quart. Journ. Tenn. Mus. 13 : 59. 1960 ; Haines, Bot. Bih. Or. 3 : 1135. 1961 (Reprint).

On way to Banari, Sept., 1981. *Manna & Samaddar* 1043.

DIOSCOREACEAE

Dioscorea bulbifera Linn. Sp. Pl. 1033. 1753. *D. sativa* auct. non Linn. ; Fl. Brit. Ind. 6 : 295. 1892 ; Haines, Bot. Bih. Or. 3 : 1172. 1961 (Reprint).

On way to Chatakpur, Sept., 1981. *Manna & Samaddar* 1014.

ZINGIBERACEAE

Globba bulbifera Roxb. Asiat. Res. 11 : 358. 1830 ; Fl. Brit. Ind. 6 : 206. 1890 ; Haines, Bot. Bih. Or. 3 : 1180. 1961 (Reprint).

Near hospital, Sept., 1981. *Manna & Samaddar* 938.

Costus speciosus (Koenig ex Retz.) J. E. Smith. in Journ. Linn. Soc. Lond. 1 : 249. 1800 ; Fl. Brit. Ind. 6 : 249. 1892 ; Haines, Bot. Bih. Or. 3 : 1196. 1961 (Reprint) ; *Banksia speciosa* Koenig ex Retz. Observ. Bot. 3 : 75. 1783.

On way to Chatakpur, Sept., 1981. *Manna & Samaddar* 1012.

ADIANTACEAE

Adiantum incisum Forssk. Fl. Aeg. Ar. 187. 1775.

Near Pine plantation, Sept., 1981. *Manna & Samaddar* 907.

ATHYRIACEAE

Athyrium hohenackerianum (Kze.) Moore, Index Fil XLIV. 1857.

Near Talao filtering station, Sept., 1981. *Manna & Samaddar* 928.

SINOPTERIDACEAE

Cheilanthus farinosa (Forsk.) Klf. Enum. Fil. 212. 1824 ; Nayar in Bull. Nat. Bot. Gdns. No. 68 : 23. 1962.

Near Talao filtering station, Sept., 1981. *Manna & Samaddar* 934.

C. tenuifolia (Burm.) Sw. Syn. Fil. 129 : 332. 1806 ; Nayar in Bull. Nat. Bot. Gdns. No. 68 : 29. 1962.

Near Talao filtering station, Sept., 1981. *Manna & Samaddar* 936.

ASPIDACEAE

Dryopteris cochleata (Don) c-Chr. Index Fil. 258. 1905.

On way to Chatakpur, Sept., 1981. *Manna & Samaddar* 1022.

NEPHROLEPIDACEAE

Nephrolepis tuberosa (Borg.) ex Willd. Pr. Jent. Pterid. 79. 1836.

Near forest rest house, Sept., 1981. *Manna & Samaddar* 975.

PTERIDACEAE

Pteris vittata Linn. Spec. Pl. 2 : 1874. Hieron in Hedwigia 54 : 290. 1914.

Near river Koel, Sept., 1981. *Manna & Samaddar* 1069.

ACKNOWLEDGEMENTS

The authors are grateful to Dr. M. P. Nayar, Director ; Dr. K. Thothathri, Joint Director, Central Botanical Laboratory for encouragement, advice and necessary help in the work. Mr. J. Das, A. K. Bhattacharjee, Kartick Roy are thanked for assistance in carrying out the work of collection. Dr. H. L. Chakravarty, Dr. G. Maiti, Sri D. C. Pal, Sri Aurobindo Pramanik and Sri U. Chatterjee are also thanked for identification of various specimens.

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