



New addition to the flora of Birbhum district, West Bengal, India

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ABSTRACT

Birbhum is one of the smallest districts of West Bengal which is floristically very rich. In this region, there are many taxa which are not reported yet as in the form of flora documentation. During field survey 6 angiospermic taxa namely *Careya arborea* Roxb. (Lecythidaceae), *Celastrus paniculata* Willd. (Celastraceae), *Coffea benghalensis* Heyne ex Roem. & Schult. (Rubiaceae), *Crotalaria verrucosa* L. (Fabaceae), *Erycibe paniculata* Roxb. (Convolvulaceae), *Eulophia explanata* Lindl. (Orchidaceae) have been collected from the district for the first time. Collected specimens were identified by the reference of different floras and authenticated it.

Key words: New addition, flora, Birbhum, West Bengal, India.

INTRODUCTION

Documentation of the species is very important aspect in the field of the taxonomy as well as for further scientific research. Birbhum is one of the smallest districts of West Bengal which is floristically very rich. Perusal of literature regarding plant resources of the district Birbhum indicates that a large number of research works have been published by various workers in the form of floristic account, ethnobotanical observation and palynological study. Guha (1968) did an extensive work regarding the floristic survey of the district. Mandal *et al.* (1998) made the pollination calendar of herbs, shrubs and trees found in and around Santiniketan. Dutta & Mandal (1998) documented about 116 tree species grown in the dry deciduous Sal forests of the district. Rahaman *et al.* (1999) enumerated 99 numbers of angiospermic climbers grown in various habitats of the district Birbhum. Bhattacharya *et al.* (2003) tried to reconstruct modern vegetation changes in lateritic zone including Birbhum using pollen analysis. About 205 plant species have been recorded along with their ethnomedicinal uses from the district (Rahaman 2011). A number of works regarding ethnobotanical as well as ethnomedicinal plants have been published from the district where

a good number of economically as well as medicinally important plant species have been documented (Rahaman *et al.* 2007, 2008, 2009, 2011; Rahaman & Pradhan, 2011; Rahaman & Saha, 2011; Rahaman, 2012; Mondal & Rahaman 2012).

Through field survey and consultation of relevant literature from the district it has been observed that 6 angiospermic plant species have not been reported so far from the district. So, present study clearly indicates that those 6 species are the new addition to the flora of Birbhum district as they have not been documented in earlier reports from the district (Basak, 1968; Guha, 1968; Mandal *et al.* 1987; Dutta & Mandal, 1998; Rahaman & Mandal, 1999; Rahaman *et al.* 1999, 2007, 2008, 2009, 2011; Choudhury *et al.* 2013).

MATERIALS AND METHODS

Study area

The district Birbhum lies between 23°32'30" and 24°35'00" North latitude and 88°01'40" and 87°05'25" East longitude. The vegetation of Birbhum district as a whole belongs to the tropical dry deciduous type with a few representatives of the evergreen type occurring here and there. Three major forest areas are found in the district namely Illambazar forest, Chorchor forest and Ganpur forest (Fig.1).

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Many field visits were made in different areas of the district for the floristic survey during 2012-2013. The collected plant specimens have carefully been identified with the help of different floras (Saldanha & Nicolson, 1976; Manilal & Sivarajan, 1982; Panigrahi & Murti, 1989; Sanyal, 1994). The collected plant specimens have been preserved as herbarium specimens following the standard method (Jain & Rao, 1977) and kept in the Visva-Bharati Herbarium, Department of Botany, Visva-Bharati, Santiniketan for future references.

RESULTS AND DISCUSSION

Altogether 6 collected plant species have been found as new occurrence in the district Birbhum which belong to the angiospermic families of Celastraceae, Convolvulaceae, Fabaceae, Lecythidaceae, Orchidaceae and Rubiaceae. A detailed description along with photographs of the collected species is provided here in this article (Fig. 2). The flowering and fruiting seasons, habitats, localities in the district and field number of the plants have also cited in the text.

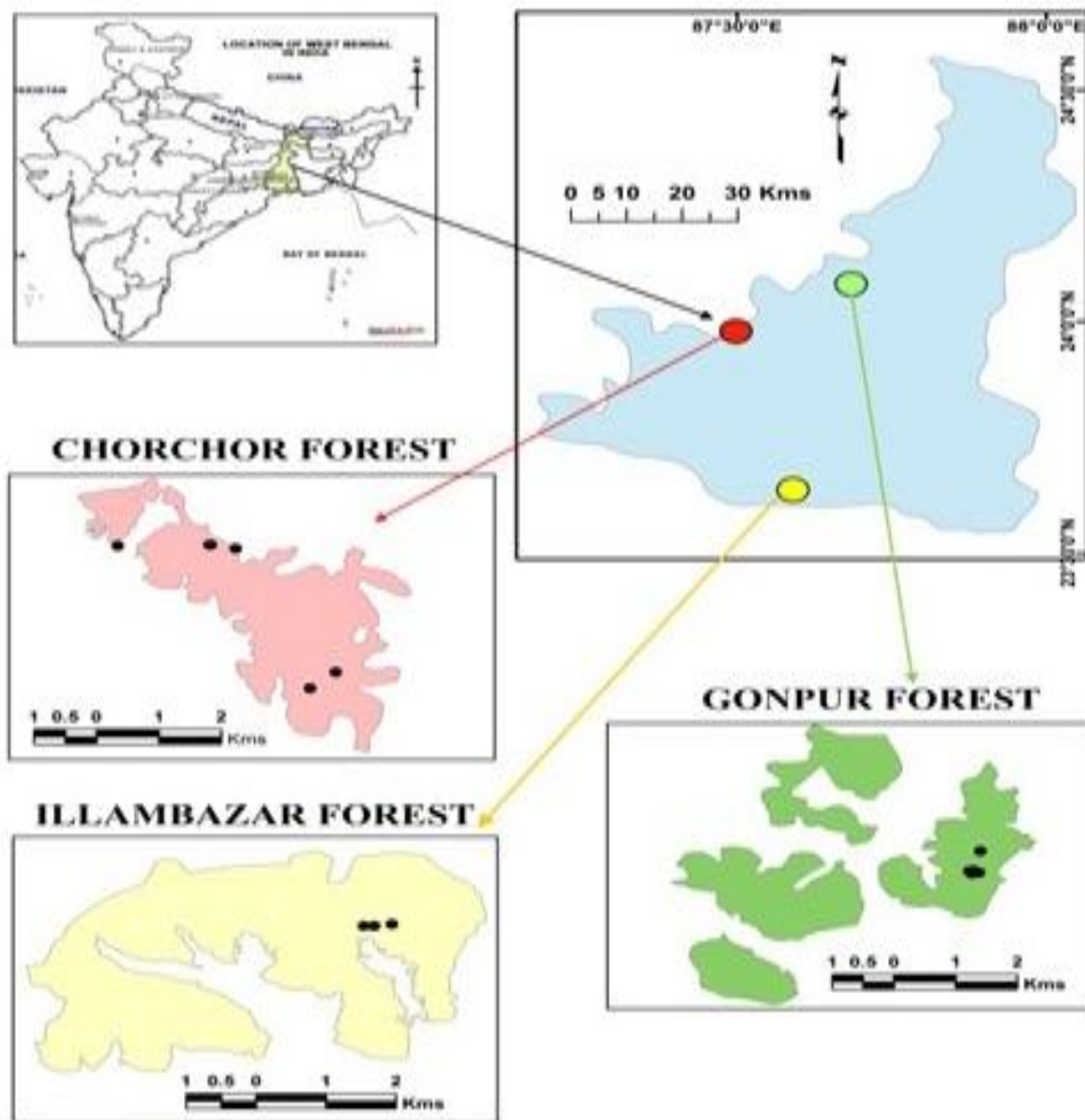


Fig. 1. Map of three areas of Birbhum district, West Bengal, India.

1. Family: Lecythidaceae

Careya arborea Roxb.

Description: A medium sized glabrous tree. Leaves 14-25 × 6-12 cm, obovate-oblong or broadly obovate, glabrous, crenate-denticulate, obtuse or abruptly acute; petiole upto 1.5 cm. Flowers white, smelling, 5 × 6 cm in diam., in terminal spikes; bracts 3, unequal. Calyx 2.5 cm long, tube campanulate, lobes nearly 1cm; petals 3-5.5 cm long elliptic-oblong, obtuse. Stamens numerous. Fruit globose, green, 6.2-8.6 cm in diam.

Flowering & Fruiting: March-August

Habitat: Occasionally found in the forest areas of the district

Location: Illambazar forest and Ganpur forest

Field No: Illambazar, *B. Pradhan* 69 and Ganpur, *B Pradhan* 351.

2. Family: Celastraceae

Celastrus paniculata Willd.

Description: A straggling, scandent shrub. Leaves 5-10.5 × 3-6cm, ovate-elliptic or obovate, abruptly acute, serrate or crenate serrate. Flowers yellowish green, 4-4.2 mm in diam., polygamous, arranged in terminal pyramidal panicles, 10-25 cm long; bracts linear. Calyx lobes 5, suborbicular, ciliate. Petals 5, oblong, rounded at apex. In male flower stamens 2 mm long; in female flowers ovary subspherical; stigma 3-lobed. Capsule globose, 1cm in diam., 3-valved. Seed ovoid, brownish.

Flowering & Fruiting: April - December

Habitat: Found in the forest areas, on the branches of tall trees like *Shorea robusta* Gaertn.f., *Pterocarpus marsupium* Roxb, etc. Sometimes reaches to the canopy of forest.

Location: Illambazar forest

Field No: Illambazar, *B. Pradhan* 114.

3. Rubiaceae

Coffea benghalensis Heyne ex Roem. & Schult.

Description: Shrubs, 1-1.5 m tall. Leaves ovate, 7.3-10.5 × 3.7-7 cm, acuminate, glabrous above, pubescent on the nerves beneath; petiole 3.8 - 6.2 mm; stipule 4-6 mm long. Flowers off-white, salver shaped, sessile, 1-3 in a fascicle, axillary, sometimes terminating the shoots. Calyx with

several minute glandular teeth. Corolla tube 1.6- 2 cm long. Anther 7.5 mm long, sessile, apiculate, tips exerted. Style short. Drupe black, ovoid, 1.2-1.4 cm long with 1-2 pyrenes. Seed grooved.

Flowering & Fruiting: February-April

Habitat: Occasionally grown in damper region of forest areas in the district

Location: Illambazar forest, Chorchor forest

Field No: Illambazar, *B.Pradhan* 560.

4. Fabaceae

Crotalaria verrucosa L.

Description: A much branched undershrub. Branches erect, 4-angled, puberulous. Leaves simple, ovate-rhomboid, obtuse or retuse, puberulous above and beneath, entire or shallowly wavy, tapering towards base; petiole very short; stipule 1-1.4 cm long. Flowers in terminal or lateral raceme, up to 20-22 cm long; bracts at the base of pedicels, linear, 2.3-2.4 cm long. Calyx 8 mm long, slightly pubescent, teeth subacuminate. Corolla bluish-white, 1.6-2.1 cm long. Pods stalked, 3-4 cm long, villous when long. Seeds 10-14 in number.

Flowering & Fruiting: October-January

Habitat: Very rarely found along the roadsides

Location: Daskalgram village

Field No: Daskalgram, *B.Pradhan* 18.

5. Family: Convolvulaceae

Erycibe paniculata Roxb.

Description: An evergreen large scandent shrub. Branches with reddish-brown tomentum. Leaves 9-12.5 × 5cm, obovate-oblong or elliptic-oblong, coriaceous, acuminate, entire, glabrous; petiole 1-1.2 cm. Flowers numerous in terminal or sometimes axillary panicles, 10-20 cm long; pedicel 3-4 mm. Sepals 3 mm long, suborbicular. Corolla 6 mm long, off-white, tube broadly infundibuliform, hairy on back. Berry subglobose, 1.2 cm across, black when ripe. Seeds elliptic.

Flowering & Fruiting: April-June

Habitat: Generally found in the forests associated with other tall trees like *Shorea robusta* Gaertn.f., *Pterocarpus marsupium* Roxb., *Soymida febrifuga* (Roxb.) A. Juss., etc.

Location: Illambazar forest and Chorchor forest

Field No: Illambazar, *B.Pradhan* 123.

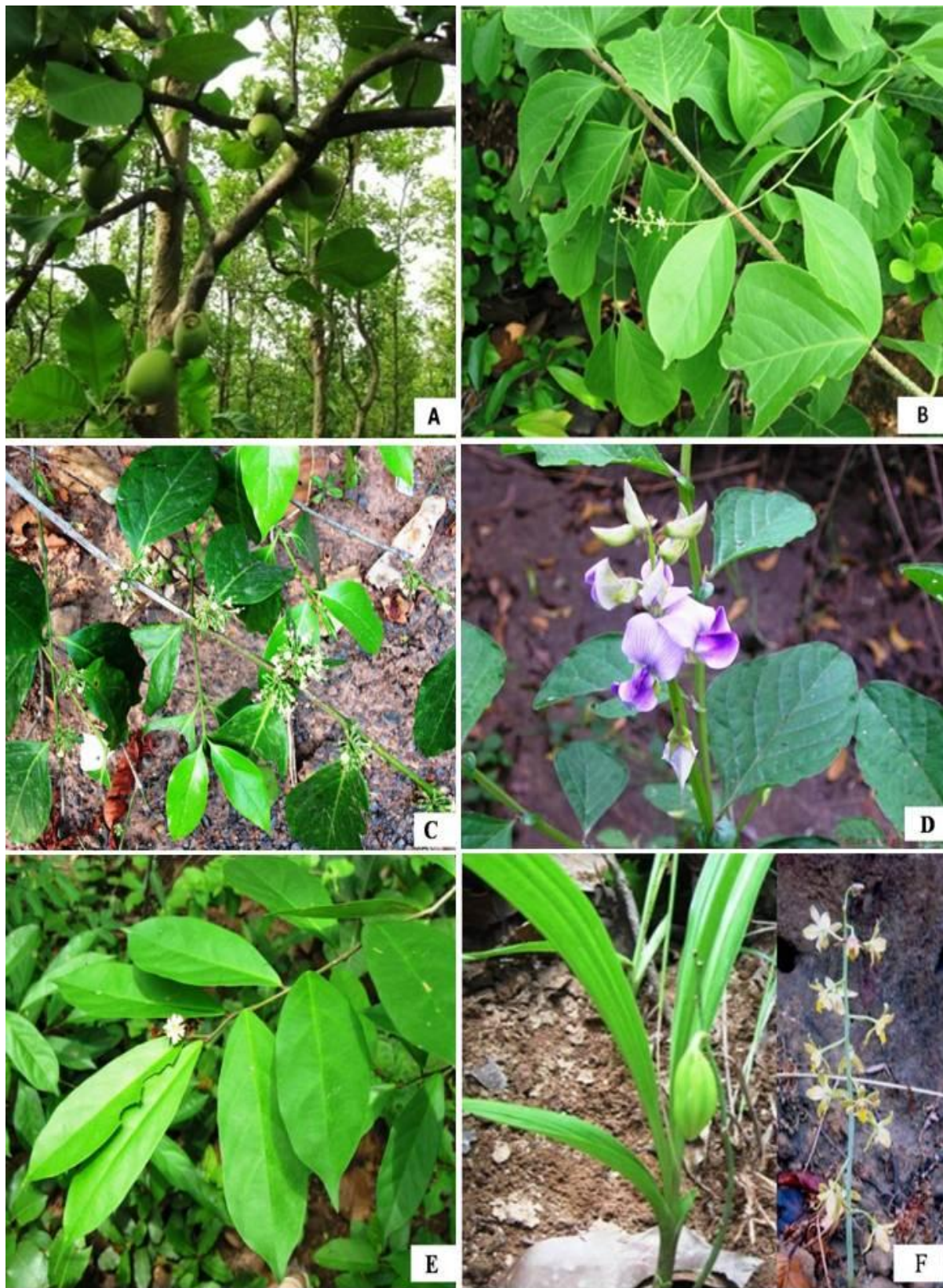


Fig.2 Photograph of the new taxa - A. *Careya arborea* Roxb. B. *Celastrus paniculata* Willd. C. *Coffea benghalensis* Heyne ex Roem. & Schult. (Rubiaceae) D. *Crotalaria verrucosa* L. E. *Erycibe paniculata* Roxb. F. *Eulophia explanata* Lindl.

6. Family: Orchidaceae

Eulophia explanata Lindl.

Description: Glabrous, terrestrial herb, pseudobulbous. Scape 10-22cm, lateral but from near the apex of an irregularly ovoid pseudobulb, lowest sheaths of scape convolute. Leaves appearing after flowers, plicate. Mature leaves broadly elliptic, 22.5-30cm long or lower only 12.5-7.5 cm, petioled, very shortly acuminate. Flowers racemose. Floral bracts 7.5 mm, shorter than the pedicel and ovary. Flowers yellow and purplish, 1 cm long and 1.8 cm across. Sepals and petals free, spreading, subequal. Sepals oblong-ovate, subacute or very obtuse. Petals broadly elliptic, 5-7 nerved, obtuse; lip bilobed, base adnate to the lateral sepals, saccate with spreading nerves, subpanduriform upwards with 2 thick, crenate lamellae on the palate and midrib generally thickened and tubercled towards the truncate emarginated tip. Column very short. Pollinia 2, globose, yellow, porate. Fruit capsule, spindle shaped with ridges, pendulous.

Flowering & Fruiting: May to July

Habitat: Rarely found in the forest floor of different forest areas in association with *Hemidesmus indicus* (L.) R.Br., *Aristolochia indica* L., *Shorea robusta* Gaertn., grasses.

Location: Illambazar forest

Field No: Illambazar forest, B. Pradhan 201.

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