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New distribution record of some members of Magnoliophyta from the forest areas of Burdwan district, West Bengal, India

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ABSTRACT

Burdwan is one of the three largest districts of West Bengal which is floristically quite rich. In this region, there are many taxa which have not been documented in floristic as well as ethnobotanical reports so far. During field survey 6 members of the division Magnoliophyta namely *Antidesma ghaesembilla* Gaertn. (Euphorbiaceae), *Azanza lampus* (Cav.) Alef. (Malvaceae), *Cissus adnata* Roxb. (Vitaceae), *Cyanotis tuberosa* (Roxb.) Schult. & Schult.f. (Commelinaceae), *Chlorophytum arundinaceum* Baker (Liliaceae), *Nelsonia canescens* (Lam.) Spreng. (Acanthaceae) have been collected from different forest areas of the district. Collected specimens were identified by the reference of different floras and authentified it.

Key Words: New distribution record, Magnoliophyta, Burdwan, West Bengal, India.

INTRODUCTION

The Division Magnoliophyta in the Kingdom Plantae comprises those species of plants that were formerly classified as angiosperms. There are around 258,650 species worldwide within this division (Hamilton and Hamilton 2006). Documentation of the species is very important aspect in the field of taxonomy as well as in other scientific studies like genetics, conservation, management and bioprospecting of phytoresources. Perusal of literature regarding plant resources of the Burdwan district, West Bengal indicated that a number of research works have been published by various workers in the form of floristic account as well as ethnobotanical observation. Banerjee (1968) made a brief account on the grasses of Burdwan district. In 1971, Ghosh *et al*. recorded *Atalantia missionis* first time from this district. An enumeration of the angiospermic flora was carried out from the Burdwan University campus (Namhata and Mukherjee, 1990). Mondal and Mandal (1994) studied the tree species diversity of the Burdwan district. Bhattacharya and Mukherjee (1998, 1999) made a detailed observation on the weeds grown in rice field of this district. A few publications on medicinal plants of the district Burdwan have been made by some workers (Mondal and Mandal, 1997; Hotwani and Mukherjee 2005, 2008). Mukherjee and Bouri (2011) studied indigenous knowledge about the uses of 72 non-timber plant species from the Durgapur Forest Range of the district Burdwan. Batabyal and Mukherjee (2011) reported that *Olax scandens* turning rare in Burdwan district. Bouri and Mukherjee (2011b) studied the biological spectrum of the Bankathi forest areas of Burdwan district where 41 species have been recorded. Bouri and Mukherjee (2012) made a taxonomic census of 187 species under the division of Magnoliophyta which are closely associated with the life of tribal people in various forest areas of the Durgapur Forest Range. An extensive work was done about indigenous usages of the non-timber products of 131 plants from the district (Bouri and Mukherjee 2013). Phytosociological and pedological characteristics of selected forest areas of the Durgapur Forest Range in Burdwan district were studied by Bouri *et al.* (2013). A phytosociological investigation of 86 plant species

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was carried out from Basudha forest area of the district Burdwan recently (Bouri *et al*. 2014).

Through field survey and consultation of relevant literature it has been observed that 6 members of the division Magnoliophyta have not been reported so far from the district Burdwan. So, present study clearly indicates that those species are the new addition to the floristic composition of the district Burdwan as they have not been documented earlier (Banerjee 1968; Ghosh *et al*. 1971; Namhata and Mukherjee 1990; Mondal and Mandal 1994; Bhattacharya and Mukherjee, 1998,1999; Hotwani and Mukherjee 2005, 2008; Batabyal and Mukherjee 2011; Bouri and Mukherjee 2011a, 2011b, 2012, 2013; Mukherjee and Bouri 2011; Bouri *et al.* 2013, 2014).

MATERIALS AND METHODS

Frequent field trips were carried out in different forest areas under the Durgapur Forest Range of Burdwan district for ethnobotanical survey in different seasons during 2012-2014 to collect the ethnobotanical data and plant specimens. The collected plant specimens have been carefully identified with the help of different floras (Saldanha & Nicolson, 1976; Manilal & Sivarajan, 1982; Panigrahi & Murti, 1989; Sanyal,1994).Then collected plant specimens have been preserved as herbarium specimens following the standard herbarium technique (Jain & Rao, 1977) and kept in the departmental Herbarium, Department of Botany, Visva-Bharati , Santiniketan for future references.

Study area

Burdwan is one of the western districts of West Bengal lying between 22º56'and 23º53' North latitude and between 86º 48' and 88 º 25' East longitudes covering an area of 7024 km^2. The district is bounded on the north by Dumka (of Jharkhand), Birbhum and Murshidabad, on east by Nadia, on the south by Hooghly, Bankura and Purulia and on the west by Dhanbad (of Jharkhand) districts. The soil of the district is classified into two major groups - alluvial and lateritic types. Soil of the forest areas in the district is mainly lateritic type. The temperature ranges from 20.1ºC to 44ºC during summer and from 6ºC to 26.2ºC during winter. Annual rainfall is more or less 1500mm. The total recorded forest area in the district Burdwan is 277 Km^2 which constitutes 3.94 % of the total geographical area of the district (State of Forest Report 2011). Forests of the district are tropical dry deciduous type. Major forest areas found in the Durgapur forest range of the district are Garh jungle forest, 11 miles jungle, Molandighi forest, Shibpur forest and Basudha forest (Fig.1).

RESULTS AND DISCUSSION

Altogether 6 collected Magnoliophytes have been found as new occurrence in the district Burdwan which belong to the families of Acanthaceae, Commelinaceae, Euphorbiaceae, Liliaceae, Malvaceae and Vitaceae. Among these 6 species, 4 are the members of Magnoliopsida and 2 species are in Liliopsida. A detailed description along with photographs of the collected species has been provided here in this article (Fig. 2). The flowering and fruiting seasons, habitats, localities of collection, field number of the plants have also cited in the text.

1. Family: Euphorbiaceae

***Antidesma ghaesembilla* Gaertn. (Fig. 2A)**

Description:
A small or medium sized tree with greyish bark. Leaves elliptic, oblong-elliptic or orbicular-oblong, 6.11 × 3.2-6.5 cm, entire, subacute or obtuse, base subcordate or rounded; petioles 1-1.5 cm long, pubescent; stipules 5-6 mm, puberulous, lanceolate. Flowers greenish yellow, sessile, arranged in slender paniculate spikes, 4-7 cm long. Male flowers: calyx 5-7 partite, densely fulvous hairy or woolly; stamens 4-7, anthers crescent-shaped; disc 5 partite, pubescent. Female flowers: calyx as in the male; ovary densely pubescent, stigma minute, recurved. Fruit subglobose, 6-8 mm in diameter, changes from red to black, edible.
Flowering & Fruiting: April to October
Habitat: Occasionally found in the forests associated with *Shorea robusta* Gaertn., *Buchanania lanzan* Spreng., *Ichnocarpus frutescens* (L.) W.T.Aiton, etc.
Location: Garh jungle forest
Field No. : Garh jungle, *P. Ghosh* 14.

2. Family: Malvaceae

***Azanza lampus* (Cav.) Alef. (Fig. 2B)**

Description:
A large shrub; young branches stellately hairy. Leaves deeply 3-5 lobed, 5-7 nerved, black dotted;

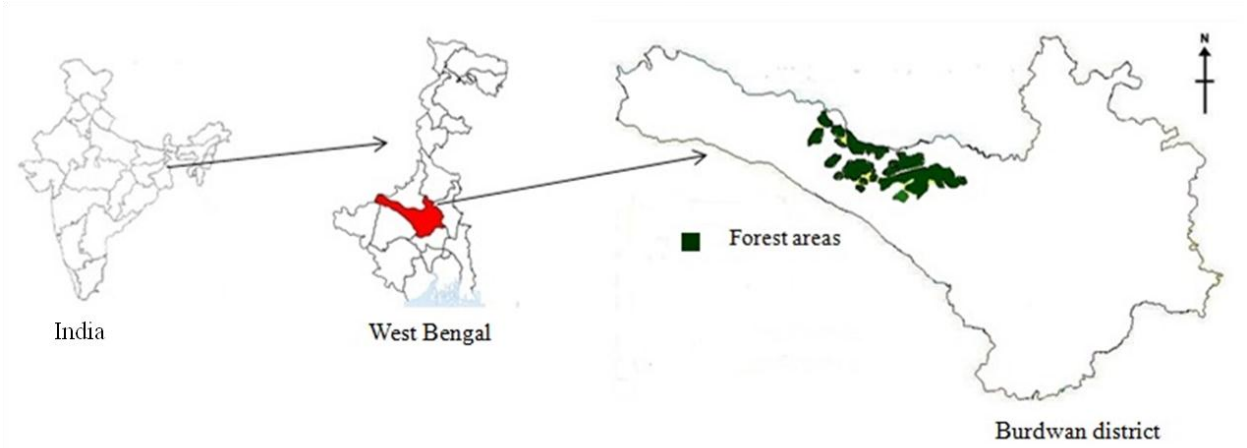

Fig. 1-Map of the forest areas in Burdwan district, West Bengal

lobes ovate to oblong, acuminate, glabrous, cordate at base; stipule 1-1.2 cm long. Flower axillary and terminal; bracts large, laciniate. Calyx persistent with large rounded teeth. Corolla yellow with purple base. Fruit capsule, ovoid, 4-4.5 cm long, beaked, densely pitted. Seeds black, glabrous.
Flowering & Fruiting: September to December
Habitat: Occasionally found under the cover of *Shorea robusta* Gaertn., *Buchanania lanzan* Spreng., *Madhuca indica* Gmel, *Pterocarpus marsupium* Roxb.
Location: Garh jungle forest
Field No.: Garh jungle, *P. Ghosh* 44.

3. Family: Commelinaceae

***Cyanotis tuberosa* (Roxb.) Schult. & Schult.f. (Fig. 2C)**

Description: A creeping herb with tuberous fasciculated roots. Stem stout, 20-80 cm long, villous, rooting at the nodes. Leaves sessile; radical leaves ensiform or narrowly oblong, 15-32 × 0.9-1.5 cm, villous; sheath 2.5-3.5 cm, villous; cauline ones linear-oblong, 6-12 × 0.6-1.2 cm; sheath 1-1.8 cm long. Flowers bluish-purple, in densely villous, spiciform cymes; spathe ovate-lanceolate, 1.5-1.8 cm long, acute; bracts 1-1.3 cm long. Sepals 6-7 mm long, densely villous. Corolla-tube narrow, lobes ovate, subacute. Stamen 6 ,filaments spiraly twisted, densely bearded above. Fruits capsule, 3-3.25 mm long, ellipsoid, pubescent. Seeds 2 mm, oblong-lanceolate, brown.
Flowering & Fruiting: July- September.
Habitat: Commonly grown in the forest floor as under growth and prefers shady places.
Location: Basudha forest
Field No. : Basudha, *P. Ghosh* 76.

4. Family: Liliaceae

***Chlorophytum arundinaceum* Baker (Fig. 2D)**

Description: Herb with many cylindrical root fibres. Stem stout, truncate at base. Leaves 15-60 × 2.5-6.4 cm, lanceolate or oblanceolate, acuminate, entire. Scape naked, 30- 60 cm long, usually elongating with age. Flowers many in erect racemes; bracts 2.5 cm or less, lanceolate, acuminate, 5 to more nerved. Tepals 0.8-1.3 cm long, lanceolate or oblong. Stamen-6, filaments 4-6 mm long; anthers longer than the filaments. Fruits capsule, 7-8 mm across, depressed-globose. Seeds black, suborbicular.
Flowering & Fruiting: May – October.
Habitat: Rarely found in the forest floor under the shady cover of *Shorea robusta* Gaertn., *Buchanania lanzan* Spreng., *Madhuca indica* Gmel.

Location: Molandighi forest

Field No.: Molandighi forest, *P. Ghosh* 112.

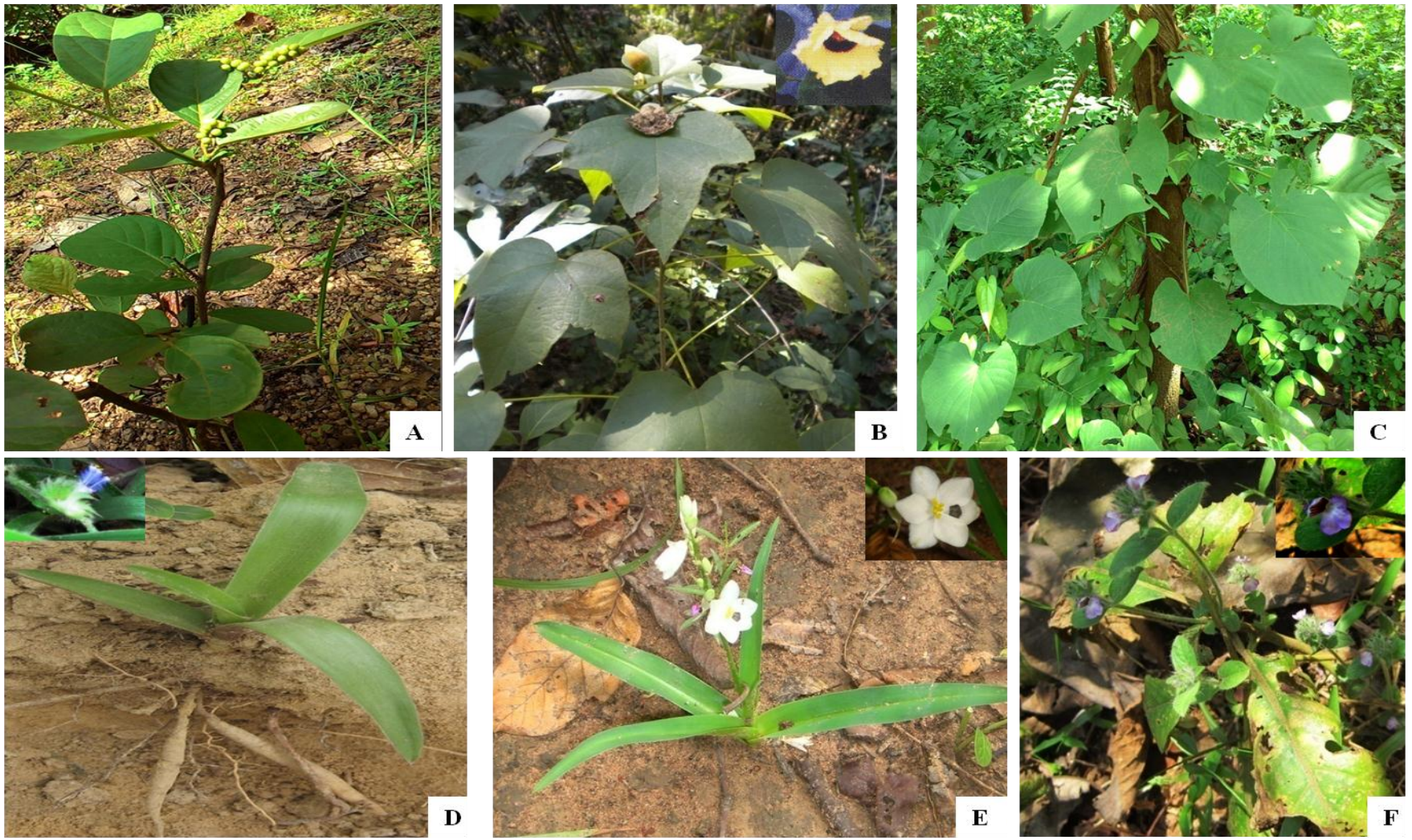

Fig.-2: A. *Antidesma ghaesembilla* Gaertn. (Euphorbiaceae), B. *Azanza lampus* (Cav.) Alef. (Malvaceae), C. *Cissus adnata* Roxb. (Vitaceae), D. *Cyanotis tuberosa* (Roxb.) Schult. & Schult.f.(Commelinaceae), E. *Chlorophytum arundinaceum* Baker (Liliaceae), F. *Nelsonia canescens* (Lam.) Spreng. (Acanthaceae)

5. Family: Vitaceae

***Cissus adnata* Roxb.** **(Fig. 2E)**

Description:
A large woody climber. Leaves simple, ovate to orbicular, cordate, bristly serrate, rusty tomentose below. Cymes umbellate on leaf-opposed brownish tomentose peduncle. Flowers small, greenish yellow. Calyx-4 , truncate. Petals 4, broadly oval, ovate, calyptrately deciduous. Fruits berry, obovoid, apiculate, bluish black, 1-seeded, rarely 2 -seeded. Seeds obovoid, brown pitted.
Flowering & Fruiting: March to September.
Habitat: Uncommon; grown in the forest areas, climbing on the branches of tall trees like *Shorea robusta* Gaertn.f., *Pterocarpus marsupium* Roxb.,etc. Sometimes reaches to the canopy of forest.
Location: Gopalpur forest
Field No.: Gopalpur forest, *P. Ghosh* 82.

6. **Family: Acanthaceae**

***Nelsonia canescens* (Lam.) Spreng.** **(Fig. 2F)**

Description:
Diffuse herbs with trailing branches; young parts softly villous. Leaves in whorls of 3, or upper decussate, oblanceate, 6-10 × 3-4.5 cm, base cuneate, margin subentire, apex obtuse, lateral veins c. 8 pairs, puberulous, thin-chartaceus Flowers in dense, broad spikes, axillary and terminal; bracts ovate, closely imbricate, densely villous. Calyx-lobes 4, unequal; corolla bluish, lobes 5, 2-lipped. Stamens 2, exerted, anther cells 2, divergent. Ovary 2-locular; ovules 8-10 per locule. Fruits capsule, oblong. Seeds subglobose, granular.
Flowering & Fruiting: January-March.
Habitat: Generally found on the forest floor in associated with *Cyanthillium cinereum* (L.) H.Rob., *Desmodium triflorum* (L.)DC., grasses etc.
Location: Garh jungle forest

Field No.: Garh jungle forest, *P. Ghosh* 32.

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REFERRENCE

Banerjee DK. 1968. Grasses of Burdwan district, West Bengal. Bull Bot Survey of India. 10: 246-250.

Batabyal S and Mukherjee A. 2011. *Olax scandens* turning rare in Burdwan district, West Bengal. ENVIS. (I):5.

Bhattacharya K and Mukherjee A. 1998 Studies on rice field weeds in Burdwan District West Bengal: Useful aliens I. Indian J Appl Pure Biol 13(2) : 135-142

Bhattacharya K and Mukherjee A. 1999. Studies on rice field weeds of Burdwan District: Useful aliens II Indian J Appl Pure Biol 14(2): 140-145.

Bouri T and Mukherjee A. 2011a. Floristic composition of the forest areas under Bankati Gram Panchayat in Burdwan District, West Bengal. Indian J Appl Pure Biol 26(2):321-325.

Bouri T and Mukherjee A. 2011b.Biological spectrum of Bankati forest areas in Burdwan District, West Bengal. Indian J Scientific Res 2(4):57-60.

Bouri T and Mukherjee A. 2012. A taxonomic census of Magnoliophytes associated with the forest abodes of tribals in Durgapur Forest Range of Burdwan District, West Bengal. Indian J Life Sc 2(1): 47-54.

Bouri T and Mukherjee A. 2013.Documentation of traditional knowledge and indigenous use of Non-Timber Forest Products in Durgapur Forest Range of Burdwan District, West Bengal. The Ecoscan: III: 69-74.

Bouri T, Palit D and Mukherjee A. 2013. Phytosociology and pedological characteristics of selected beats of Durgapur Forest Range, West Bengal, India. Communications in Pl Sc. 3(3-4): 37-45

Bouri T, Palit D and Mukherjee A. 2014. An investigation of plant communities in Basudha beat of Durgapur forest range, West Bengal, India. Internat J Current Microbiol Appl Sc 3(9) 596-607.

Ghosh RB, Guha Bakshi DN, Mukherjee KD and Mondal SK. 1971. On the occurrence of *Atalantia missionis* Oliv. in the district of Burdwan in West Bengal. J Bombay Natural History Society. 68: 851-852.

Hamilton A and Hamilton P. 2006. Plant conservation: An ecosystem approach. Earthscan, London, p. 2.

Hotwani G and Mukherjee A. 2005. Studies on medicinal plants of Burdwan:II. Flora and Fauna 11(1):81-90.

Hotwani G and Mukherjee A. 2008. Studies on medicinal plants of Burdwan-III. J Economic and Taxonomic Bot 32(Suppl.): 425-436.

Jain SK and Rao RR. 1977. A Handbook of Field and Herbarium Methods. Today and Tomorrows Publishers, New Delhi, India.

Manilal KS and Sivarajan VV. 1982. Flora of Calicut: The flowering plants of the greatest Calicut area consisting of the western sectors of Calicut and Malappuram districts. Bishen Singh Mahendra Pal Singh. DehraDun.

Mondal AK and Mandal S. 1994. A contribution to the tree flora of Burdwan district, West Bengal. Internat J Mendel. 11(3-4): 141-142.

Mondal AK and Mandal S. 1997. A contribution to the medicinal plants of Burdwan district, West Bengal. Environ. & Ecol. 15: 166 – 174.

Mukherjee A and Bouri T 2011.Indigenous knowledge about the use of Non-timber phytoresources as documented from forest areas under Durgapur Forest Range, Burdwan District. The Ecoscan: 1:59-62.

Namhata D and Mukherjee A. 1990. An enumeration of the angiosperms in the campus of University of Burdwan. J Economic and Taxonomic Bot 14(1): 41-47.

Panigrahi G and Murthi SK. 1989. Flora of Bilaspur (MadhyaPradesh). Vol 1. Calcutta.

Saldanha CJ and Nicolson DH. 1976. Flora of Hassan District. New Delhi, India.

Sanyal MN. 1994. Flora of Bankura District. Bishen Sing Mahendra Pal Singh, Dehra Dun, India.