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NEW PLANT SPECIES RECORDS TO FLORA OF NAGPUR DISTRICT (MAHARASHTRA)

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Abstract

Nagpur is one of the districts in the Vidarbha and winter capital of Maharashtra with great biodiversity of plants. Ugemuge (1986) studied 'The Flora of Nagpur district' and others added some species to existing data. The changes after very recent urbanization and industrialization have affected the flora of Nagpur district a lot. In view of it and after introduction of new digital technology, it is very necessary to update and revise the existing floristic structure of Nagpur district. Digital database preparation is technologically a step ahead in the revision of the flora of Nagpur district with some advancement. The present paper enumerates additional four dicot taxa collected from Nagpur district which fall under four genera and four different families which are new record for the district viz. *Polycarpon prostratum* (Forsk.) Asch. (Caryophyllaceae), *Acacia ferruginea* DC. (Mimosaceae), *Mollugo nudicaulis* Lam. (Molluginaceae), *Holoptelea integrifolia* (Roxb.) Planch. (Ulmaceae). These plants have many medicinal and economic values.

Key words: New plant records, Flora, Digital database, Nagpur district.

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INTRODUCTION

Nagpur district is a district in the Vidarbha region of Maharashtra state in central India with great biodiversity of plants with many economically and medicinally important plants and of which, some are rare and endangered plants. Nagpur district lies between the latitudes $20^0$35' and 21^0 44' North and longitudes 78^0 15' and $79^0$40' East and has an area of 9930 sq km. The average rainfall is 1205 mm and average humidity is 45%. (www.maharashtraonline.in). Climate follows a typical seasonal weather pattern. The peak temperatures are usually reached in May-June and can be as high as 48-50^0C. The onset of monsoon is usually from July to September, with monsoon peak during July to August. After monsoon the average temperature varies between 27^0C and approx 6-7^0C through December and January (http://www.indianngos.com). The city of Nagpur is the district headquarters. Nagpur district is divided into 14 talukas: Ramtek, Umred, Kalameshwar, Katol, Kamthi, Kuhi, Narkhed, Nagpur, Nagpur (Rural), Parseoni, Bhiwapur, Mouda, Saoner and Hingana. The Flora of Nagpur district was studied earlier by Ugemuge (1986) and after publication of Flora of Nagpur District, over the past few decades, several floristic inventories have been progressed throughout the district. Those had resulted in the compilation of a number of checklists *viz*. Bhuskute (1989,1990), M.T.Thakre and T.Srinivasu (2012a, 2012b), Kamble et al (2013), etc. However, recent urbanization and industrialization has affected the flora and fauna of Nagpur and its surroundings a lot. From biodiversity and conservation point of view, it is very necessary to explore existing floristic structure of Nagpur district to update and revise the earlier data. Hence, it was thought worthwhile to undertake current study to update and revise existing biodiversity of Nagpur district by using new digital technology i.e. electronic devices, computer software and digital images in the preparation of digital database of the flora (Srinivasu, 2003). This work is done by using software, DELTA (Descriptive Language for Taxonomy) (Dalwitz *et al.*, 2000), which provide taxonomic description, identification and information retrieval package system and stores data with interactive key facility. During the preparation of Digital database of dicot plants of Nagpur districts, these four plant species found to be new to this region.

MATERIAL AND METHODS

Field visits were undertaken to different localities of Nagpur district throughout the year (various seasons) and collected the digital photos of plants in their natural habitat and plant specimens for observation, identification and data preparation in the laboratory during the study period.

Plant specimens identified with Flora of Maharashtra State: Dicotyledons Volume 1 & 2 (Singh *et al*., 2000, 2001); Flora of Marathwada Volume I & II (Naik, 1998); The Flora Of The Presidency Of Bombay (Cooke, 1958) and Flora of Maharashtra (Almeida, 1996, 1998, 2001, 2003) and data of plant specimens were fed in the DELTA software (with more than 200 indigenously developed set of morphological characters). The digital images were attached (after processing them) to the respective plant descriptions in the database.

RESULT AND DISCUSSION

During the preparation of digital database of plants of Nagpur district and after going through the literature it was found that these four plant species belonging to four different families were found to be new to this region which has some medicinal and economical properties also. The brief descriptions of new records along with their medicinal uses are given below:

***Polycarpon prostratum* (Forssk.) Aschers.** **Family: Caryophyllaceae**

Polycarpon prostratum (Forssk.) Aschers. & Schweinf. in Ost. Bot. Zeitschr. 39: 128. 1889 in Obs.; N. C. Majumdar in Sharma et. al. Fl. India 2: 553, f. 114. 1993. *Alsine prostrata* Forssk. Fl. Aeg.-Arab. 207. 1775. *Polycarpon loeflingiae* (Wight & Arn.) Bth. & Hook. f. ex. Edgew. & Hook. f. Fl. Brit. India 1: 245. 1874 nom. Illeg.; Cooke, Fl. Pres. Bombay 1: 69. 1958 (Repr.).

A perennial herb; branches dichotomous, more or less pubescent, prostrate or ascending. Leaves upto 1 by 0.1 cm, linear-oblong or spathulate, glabrous or pubescent; stipules scarious, white. Flowers small, many in dichotomous cymes, terminal or axillary, green; bracts ovate, acute; pedicels stout, more or less pubescent; sepals ovate-oblong, acute keeled on the back; petals shorter than the sepals, truncate, toothed at the apex. Capsules thin walled enclosed in the sepals. Seeds many, subcylindric, rough, pale brown.

Common Names: Sureta

Flowering & Fruiting: July-January.

Habitat: Frequent in open areas, along river banks.

Distribution: In Nagpur District (Kolar river bank, Kanhan river bank, Bhanegaon).

Medicinal uses:

Infusion of roasted leaves given for cough following fevers, particularly after measles (Ambasta, 2000).

***Acacia ferruginea* DC.** **Family: Mimosaceae**

Acacia ferruginea DC. Prodr. 2: 458. 1825; Baker in Hook. f. Fl. Brit. India 2: 295. 1878; Cooke, Fl. Pres. Bombay 1: 477. 1958 (Repr.); Sanj. Legumes of India 39, 40. 1991.

A moderate sized tree, bark rough, rusty brown; young parts glabrous, prickles sometimes suppressed. Leaves 2-pinnate, 5-11 cm long; main rhachis slender, glabrous with a large gland on the petiole and another between the uppermost pair of pinnae; petioles 2.5-5 cm long, thickened at the base; stipular spines short, hooked in pairs; pinnae 3-6 pairs, 5-8 cm long, distant, shortly stalked, the stalk thickened at the base and the slender, glabrous; Leaflets 10-20 pairs, 6-8 by 2-3 mm, linear-oblong, obtuse, unequal sided, glaucous above, pale beneath, rigidly subcoriaceous, glabrous; petiolules very short; flowers pale yellow, sessile in slender axillary spikes 8-10 cm long, peduncles often numerous, glabrous; calyx campanulate, 1.5 mm long, glabrous, teeth distinct, deltoid; corolla 3-4 mm long, divided about half way down, lobes oblong-lanceolate, acute; Pods stalked, 8-12 by 2-2.5 cm, straight, flat, thin, brown, reticulately veined, glabrous, indehiscent, the upper suture narrowly winged; seeds 4-8.

Common Names: Pandhara Khair, Sonkhair, Kaigar.

Flowering & Fruiting: May-October.

Habitat: Frequent in dry areas, forests.

Distribution: In Nagpur District (University Campus, Gorewada).

Medicinal uses:

The bark is bitter and acrid; hot, anthelmintic, cure itching, leucoderma, “kapha” and “vata” , ulcers, stomatitis, diseases of the blood. The extract of the leaves is astringent, styptic, tonic; stops

suppuration; enriches the blood; useful in liver complaints, diseases of the eye, diarrhoea, dysentery, gonorrhoea, gleet, burns and scalds; beneficial to the alimentary and urinary tracts. The bark is used as an astringent. The gum is demulcent, emollient, nutrient. The pods and the extract from them are astringent and demulcent. (Kirtikar & Basu, 1975).

***Mollugo nudicaulis* Lam.** **Family: Molluginaceae**

Mollugo nudicaulis Lam. Encycl. 4: 234. 1797; C.B.Cl. in Hook. f. Fl. Brit. India 2: 664. 1879.

Herbs, erect, slender, annual. Basal leaves 1-4 by 0.2-3 cm, in a rosette, obovate-oblong, spathulate, attenuated at the base, entire, obtuse or retuse at the apex, membranous, glabrous. Petioles 0.5-1.5 cm long, slender, glabrous. Flowers in trichotomous cymes; bracts 1 mm long. Flowers minute, white or very pale creamy. Pedicels 5-8 mm long, glabrous, filiform, Sepals 5, elliptic, hooded, white, persistent. Stamens 3-5. Filaments filiform, whitish, slightly flattened at the base. Ovary oblong, 3-lobed, 3-celled. Styles 3. Capsules ellipsoidal, about 2 mm long. Seeds about 30, granular, reniform, reddish brown to black, shining, minutely tuberculate.

Flowering & Fruiting: September-November.

Habitat: A weed along roadsides in open and waste places and also in cultivated fields.

Distribution: In Nagpur District (Ambazari Garden, Umari).

Medicinal uses:

Pectoral, used in whooping cough. Leaves applied to boils for suppuration (Ambasta, 2000).

***Holoptelea integrifolia* (Roxb.) Planch.**

Holoptelea integrifolia (Roxb.) Planch. In Ann. Sci. Nat. 3, 10: 269. 1849; Hook. f. Fl. Brit. India 5: 481. 1888; Cooke, Fl. Pres. Bombay 3: 128. 1958 (Repr.); *Ulmus integrifolia* Roxb. Pl. Cor. 1: 56, t. 78. 1795 et in Willd. Sp. Pl. 1: 1326. 1797.

Large, spreading, glabrous, deciduous tree, 10-20 m high; Bark grey, pustular. Leaves elliptic-acuminate, glabrous, entire, 4-11 by 3-6 cm, base rounded or cordate, main nerves 5-7 pairs; petioles 6-10 mm long. Flowers brownish, polygamous, in axillary, short racemes or fascicles on leafless branches. Sepals often 4, pubescent, 1.5-2.5 mm long. Stamens 4-8; filaments glabrous; anthers pubescent. Ovary compressed, pubescent, 1-celled, stalked, the stalked lengthening as the seed ripens; styles 2-4 mm long, stigmatose on the inside throughout their whole length. Fruits winged, samaroid, orbicular, 2.5 cm in diameter with reticulately veined wings, wings of fruit emarginate at tip and crowned by persistent styles.

Common Names: Papada, Wavli, Chilbil, Dhamma, Begana.

Flowering & Fruiting: January-June.

Habitat: Common in deciduous forests.

Distribution: In Nagpur District (Civil lines-Nagpur, Suradevi).

Uses:

Wood used for brush-backs and handles of dusting brooms; also used for indoor building purpose, cheap furniture, cabinet work, carving ploughs, yokes, carts and carriages, combs, shoe heels, mathematical instruments, bobbins, cotton reels and dugout boats; suitable for plywood, packing cases, match boxes and splints, and paper pulp. Bark pulp made into hardboards and insulation boards. Seeds contain fatty oil (Ambasta, 2000).

CONCLUSION

The present study indicates that Nagpur district is one of the biodiversity rich regions for medicinal and economically important plants. Digital database preparation is technologically a step ahead in the revision of the flora of Nagpur district with some advancement.

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