# THREE NEW RECORDS FOR THE FLORA OF JAMMU AND KASHMIR STATE, INDIA

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#### ABSTRACT

The paper presents three new extended distributional records for the flora of Jammu and Kashmir State. During the field survey in Southern parts of Jammu and Kashmir State, some interesting plants were collected from district Jammu and district Samba between 2010 and 2018. The specimens are identified in the Laboratory by consulting relevant taxonomic literature and critical examination of the specimens. The taxonomic accounts of the species examined *Blyttia spiralis* (Forssk.) D. V. Field & J. R. I. Wood (Apocynaceae), *Chromolaena odorata* (L.) King & Robinson (Asteraceae), *Solanum sisymbriifolium* Lam. have been provided. All these species have been collected from Jammu division of Jammu of Jammu and Kashmir. Of these three species two species have been collected from Jammu district and one species from district Samba. A brief description of species, flowering and fruiting periods, distribution, illustrations and photo plates are provided to facilitate its identity in the field.

Keywords: Flora; Distribution; new records Jammu & Kashmir; India

#### INTRODUCTION

During the plant collection in different parts of Jammu and Kashmir, some interesting plants were collected from district Jammu and district Samba between 2010 and 2018. The specimens are identified in the Laboratory by consulting relevant taxonomic literature and critical examination of the specimens, the three species confirmed as new records, Blyttia spiralis (Forssk.) D. V. Field & J. R. I. Wood (Apocynaceae), Chromolaena odorata (L.) King & Robinson (Asteraceae), Solanum sisymbbriifolium Lam. (Solanaceae), have been described. All these species have been collected from Jammu division of Jammu of Jammu and Kashmir. Of these three species two species have been collected from district Jammu and one species from district Samba. A brief description of species, phonology, flowering and fruiting periods, illustrations and photo plates are provided to facilitate its identity in the field. The genus Blyttia (Apocynaceae) has so far only two species with accepted names as the new genus was segregated from Pentatropis (The Plant List, 2013). Asclepia spiralis has been misinterpreted and Pentatropis spiralis based on Forsskal's name was known by the new combination Pentatropis spiralis. This name of shrubby species has hitherto been referred to Cynanchum. Now, this species along with Cynanchum fruticulosum placed under the small genus Blyttia Arn. Therefore, the combinations B. spiralis and B. fruticulosum were proveded (Field and Wood, 1983). Pentatropis spiralis has already been reported from Karachi, Sind, Baluchistan, Lahore and Multan (Stewart, 1972) the adjoining areas of Jammu and Kashmir State. All these localities are now under West Pakistan. The range of distribution of this species further extends from Punjab to eastward to Jumna River (Hooker, 1885). The studies dealing with alpine flowering plants of West Himalaya reveals that it has not been reported from Jammu and Kashmir (Rau, 1975). Chromolaena odorata (L.) King & Robinson (Asteraceae) formerly known as Eupatorium odoratum L. is a weedy shrub native to America (Gautier, 1972). The species introduced in mid of 19th century and spread to Southeast Asia and some parts of Oceania (Maniappan and Marutani, 1988). Eupatorium was represented by 1200 species before its split (King & Robinson, 1970) following which Chromolaena now comprises of 165 species from South Central America and West Indies (King and Robinson, 1987). Solanum L. (Solanaceae) is one of the largest genera of flowering plants and highly diversified with a range of 1500 - 1700 species. The species of this genus are distributed all over the world and economically, the most important (Mabberley, 2008). In India, the genus is represented by 40

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species, mostly distributed in Southern and Western India and temperate Himalayas (Babu, 1977). The Indian States representing *Solanum sisymbriifolium* include Assam, Bihar, Karnataka, Kerala, Maharashtra, Manipur, Orissa, Punjab, Sikkim, Tripura and West Bengal (Saha and Datta, 2013). *S. sisymbriifolium* was recorded new to Bihar (Mishra and Kumar, 1992), a new record for Rajasthan State (Yadav and Menna, 2007) and a new record for Delhi Flora (Mishra, 2015). Numerous botanists have explored this area in the Himalayan ranges that resulted various publication include, The Flora of British India (Hooker, 1881; 1883), High altitude flowering plants of West Himalaya (Rau, 1975), Flora of Ladaka: An ecological and taxonomical appraisal (Kachroo & Sapru 1977), Flora of Jammu and plants of neighbourhood vol. I (Sharma & Kachroo 1981), Alpine flora of Kashmir Himalaya (Dhar & Kachroo 1983), Flora of Upper Lidder Valleys of Kashmir Himalaya (Sharma & Jamwal 1988), Flora of Udhampur district (Swamy and Gupta, 1998). The perusal of literature testifies that *Blyttia spiralis* (Forssk.) D. V. Field & J. R. I. Wood (Apocynaceae), *Chromolaena odorata* (L.) King & Robinson (Asteraceae), *Solanum sisymbriifolium* Lam. (Solanaceae) have not been reported from this State Therefore, these three species are described as new records to the flora of Jammu and Kashmir. The validity of botanical names along with the author's citations have been confirmed from www.ipni.org.

## MATERIALS AND METHODS

The specimens were collected from Jammu towards east forest hills currently under district Samba. These specimens were carried to Laboratory and examined under the stereo Microscope. The specimens were collected from natural habitat and herbarium specimens were prepared by following standard techniques (Jain and Rao, 1977) The identification of plants in the field by using handheld devices and digital camera serves as number of useful functions (Saitoh and Kaneko, 2000). The specimens were identified as *Chromolaena odorata* (L.) King & Robinson, *Pentatropis spiralis* Decne, *Solanum sisymbriifolium* Lam., after consultation of relevant floristic literature. Photograph of the plant and fruits are provided (Fig. 1, 2 A & B).



**Figure 1:** *Chromolaena odorata* (L.) King & Robinson: A, Middle portion of stem: B, Twig in flowers; C, Capitulum; D, Disc florets without style; Disc florets showing style; F, Style; G, Cypsela with pappus.

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Figure 2: A, *Blyttia spiralis* (Forssk.) D. V. Field & J. R. I. Wood, a twig in flower; B, *Solanum sisymbriifolium* Lam. twig in flower; C, Berries of *Solanum sisymbriifolium* Lam.

#### **RESULTS AND DISCUSSION**

1. *Blyttia spiralis* (Forssk.) D. V. Field & J. R. I. Wood, Kew Bull. 38(2): 219. 1838. *Pentatropis spiralis* Decne. in Ann. Sc. Nat. 327.t.11.1838 & in DC. Prodr. 8.536; Edgew. in J. Linn. Soc. 6: 204. t. 1. f. 9; Boiss., Fl. Orient. 4: 58.

Twining slender herbs or shrubs; leaves small, opposite, 2.5-3.5 long, variable, base obtuse, apex acute, apiculate, coriaceous, nerves obscure; petiole 4-6 mm long; inflorescence in umbelliform, axillary cymes; flowers small, calyx 5-partite, corolla 5-fid, rotate, laterally compressed scales adnate vertically to back of anthers, base purplish, base spurred; anther tips inflexed, pollen masses compressed, pendulous, waxy; follicles smooth; seeds comose.

Flowering and Fruiting: April - October

Specimens examined: Jammu Bhellum (300m) District Jammu of Jammu and Kashmir State Distribution: Naturalised in various parts of India

2. *Chromolaena odorata* (L.) King & Robinson in Phytologia 20: 204. 1970; Sald. & Nicols., Fl. Hassan Dist. 605. 1976; *Eupatorium odoratum* L., Syst. Nat. ed. 10, 2: 1205. 1779; Clarke in Hooker f., Fl. Brit Ind. 3: 244. 1881.

Herbs or shrubs; stem about 1 m tall, glandular pubescent; leaves opposite, ovate, rhomboid, lanceolate, apex acute, margin serrate-dentate, upto 10 x 4.5 cm, glabrous above, pubescent glandular beneath; heads corymbs; phyllaries 3-5 seriate, oblong, ovate, lanceolate, glabrous or sparsely pubescent, outer smaller, inner ones longer; florets pale purple or white; pappus white, barbered.

Flowering and Fruiting: April- October

Specimens examined: Jammu Bhellum (300 m) District Jammu of Jammu and Kashmir State

3. *Solanum sisymbriifolium* Lam., Tabl. Encycl. 2: 25. 1794 & Illustr. 2: 25. 1797; Prain, Bengal Pl. 2: 746. 1903; Gamble, Fl. Pres. Madras 938. 1923; Kanjilal et al. Fl. Assam 3: 371. 1939; Methew in Rec. Bot. Surv. Ind. 20(1): 162. 1969; Sahni & Naithani in Acta Bot. Indica 2: 151-153. 1974; Raizda, Supp. Fl. Upper Gang. Plain 176. 1976; Das & Janardhanan in Ind. Jour. For. 5(3): 251-253. 1982; Singh in Ind. Jour. For. 9(1): 78-79. 1986; Happer in Darsan & Fesberg (edn.) Rev. Handb. Fl. Ceylon 6: 387. 1987.

Undershrubs, upto 1 m tall, densely prickly; leaves alternate,  $12-18 \times 7-10$  cm, oblong or oblonglanceolate, deeply pinnatifid or pinnatisect, lobes  $1-4 \times .6-1.6$  cm, oblong; petiolate, petiole upto 2.5 cm long; Inflorescence 3-6 flowered pedunculate cymes; flowers white; pedicel upto 1 cm long, prickly; Indian Journal of Plant Sciences ISSN: 2319–3824 An Open Access, Online International Journal Available at http://www.cibtech.org/jps.htm 2019 Vol. 8(2) April-June, pp.20-24/Bhellum

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calyx cup-shaped, prickly, accrescent in fruits, 5-6 lobed, lobes linear-lanceolate, acute; corolla campanulate, 5-6 lobed, pubescent on outside, spreading; stamens 5-6, anthers bithecous; ovary glabrous, bicelled many ovuled; berry globose, 7-15 mm across, shinning, red; seeds light brown, pitted.

Flowering and Fruiting: May - October

Specimens examined: Grows on waste places at Vijaypur, Bhellum (300 m) District Samba, Jammu and Kashmir

Distribution: India (Bihar, West Bengal, Orissa, South India)

Although, all these researchers contributed to the floral diversity of Jammu and Kashmir. The three new records have been reported for the Flora of Jammu and Kashmir State suggest that numerous species have not been reported so far that still not only attract attention of the taxonomists and botanists but also pose the problem thereby reflecting the true image of current status of unfinished task that has been currently projected. There is still a scope for discovery and more elements to be recorded through involving experienced and young taxonomists.

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