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## Addition of three new species to the flora of Allahabad (Prayagraj), Uttar Pradesh, India

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**Abstract-** The author continuously visited to study area for the floristic survey which deals with three new species addition to the Flora of Allahabad, Uttar Pradesh. These three species are herbaceous in nature which is *Portulaca pilosa* L. (Portulacaceae), *Pentapetes phoenicea* L. (Malvaceae) and *Cyperus digitatus* Roxb. (Cyperaceae). It was first noticed between June to September 2021, and was identified as new addition from Allahabad (Prayagraj) District, Uttar Pradesh. Brief description provided with up to date citation, description, photographs, ecology and geographical distribution.

**Key words:** Addition, *Portulaca pilosa* L., *Pentapetes phoenicea* L., *Cyperus digitatus* Roxb., Prayagraj, Uttar Pradesh.

### INTRODUCTION

The floristic documentation is mainly based on the field observations. These species are mostly occurring in waste places, moist and cultivated field which is distributed tropical and sub-tropical region of the world. There are 2 species of genus *Portulaca* L. (Portulacaceae), 7 genus of family Malvaceae and 25 species, 2 subspecies of genus *Cyperus* L. (Cyperaceae) out of 713 species belonging to 419 genus and 113 families of angiosperms by Mishra and Verma (1992)<sup>1</sup> made a latest complete floristic account of Allahabad district.

A large number of research works has been published from study area by various workers in a form of floristic accounts, ethnobotanical observations and ecological studies. The floristic work was first time undertaken by Srivastava (1938)<sup>2</sup>, biological spectrum of Allahabad flora Srivastava (1944)<sup>3</sup> and a supplement to flora of Allahabad

Srivastava (1949)<sup>4</sup>. Panigrahi and Arora (1962)<sup>5</sup>, Panigrahi and Saran (1968)<sup>6</sup> also have been conducted township floristic work. After Botanical Survey of India, central circle, Allahabad undertook a project to bring out an illustrated manual of the flora of Allahabad town (Rajagopal 1965<sup>7</sup>, Rajagopal and Panigrahi 1965<sup>8</sup>, Rajagopal and Panigrahi 1966<sup>9</sup>). Sharma and Pandey (1984)<sup>10</sup> have published an enumerative account of exotic species in district Allahabad. So far, there is no authentic published record has been available from the study area of these three new species.

### MATERIALS & METHODS

During the intensive floristic survey, the author found that most of the parts of study area are abundance of grasslands and cultivated fields. The *Portulaca pilosa* L., *Pentapetes phoenicea* L. and *Cyperus digitatus* Roxb. recorded first time from Allahabad. These plants were collected from different localities of Prayagraj district in

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between the month of May to December (2021). The permanent characters which are habit / habitat, flower color, fruiting, seeds as well as other key points and photograph along with the latitude and longitude were also recorded. The flowers were dissected out and plants were carefully identified with regional floras that is Flora of Upper Gangetic plains<sup>11</sup> and flora of Uttar Pradesh<sup>12</sup>. The specimens were selected and then were pressed and dried. To avoid fungal infection specimens were poisoned with alcohol and mercuric chloride solution. The well prepared specimens pressed on mounting board listed as per the Bentham and Hooker (1862-1883) system of classification. The specimens were stored in Duthie Herbarium, Department of Botany, University of Allahabad, Prayagraj.

#### **Study area**

In 2018 the name of the district was change to Prayagraj which was previously known as Allahabad. Prayagraj district having very rich diversity<sup>13</sup> which is part of Gangetic plains of India. It located at 25.45°N 81.84°E in the southern part of the Uttar Pradesh at an elevation of 98 meters (322 ft). It is sharing border with Rewa District (Madhya Pradesh) to the South, Jaunpur District to the East, Kaushambi District to the west, Mirzapur District to the East, Pratapgarh District to the North. It occupies an area of approximately 365 km<sup>2</sup>.

#### **RESULT & DISCUSSION**

A field survey was conducted by the author in the study area to know the three new species which belong to the three different genus and families. Out of three species, two species belongs to dicot (Portulacaceae & Malvaceae) and one species belongs to monocot (Cyperaceae) but all were herbaceous in nature. The plant specimens were collected and correlate with the occurrence of various herbaceous species. Reporting of these new species indicate towards increase in the diversity of herbaceous flora of Prayagraj district. In this continuation *Portulaca pilosa* L. and *Cyperus digitatus* Roxb. is included as species and *Pentapetes phoenicea* L. is included as genus in Flora of Allahabad.

#### **Taxonomic treatment**

*Portulaca pilosa* L., Sp. Pl.; 1753; Vasudeva Rao in B.D. Sharma & Sanjappa, Fl. India 3:6. 1993; K.P.Singh & al, Fl. U.P. 1: 202. 2016.

Herb, erect, annual, much branched, up to 30 cm high, with branched woody roots. Leaves spiral, crowded at apices of the branches, subterete or linear lanceolate, 4-25 x 1-4 mm,; axillary hairs sparse. Flowers 2-6 in capituli. Sepals ovate, 2-5 x 1-4 mm, ecarinate. Petals 4-6, pink of reddish purple, obovate, 2.5-8 x 1.8-11 mm. Stamens 10-16; filaments 1-5 mm long. Style 2-8 mm long, 3-7 armed. Capsule yellow to green, globose, 2-3 mm across; operculum present, shining. Seeds dull or bluish, 0.4-0.7 mm across.

**Flowering and Fruiting:** July – October.

**Type:** LT: Herb. Linn. - 625.2. (LINN/A:625.2)

Occurs in sandy soil along the road side.

**Voucher specimens:** Dhanuha, Prayagraj, Oct. 20.2021, P. Kumar: 35525 (Duthie herbarium) (25° 22' 14.664"N, 81° 50' 25.5156" E)

*Pentapetes phoenicea* L., Sp. Pl.: 698. 1753; mast. in Hook.f., Fl. Brit. India 1: 371. 1874; Duthie, Fl. Gangatic Plain 1: 105.1903; R. Dutta in B.D. Sharma & Sanjappa, Fl. India 3: 443. 1993; K.P.Singh & al, Fl. U.P. 1: 259. 2016.

An erect herb or undershrub. Leaves 5-13 cm long, lanceolate or liner-lanceolate, crenate-serrate, glabrous above, stellately hairy beneath especially on veins. Stipules subulate, linear. Flowers red. Capsules 1.6 cm long, sub-globose, bristly nearly half the length of the persistent calyx. Seeds 8-12, 2-seriate, angular, rough, brownish-black.

**Flowering and Fruiting:** August- November.

**Type:** LT: LINN-860.1.

In waste place and some time in gardens.

**Voucher specimens:** Ghoorpur, Prayagraj, Nov. 12. 2021, P. Kumar: 35527 (Duthie herbarium), (25° 19' 52.9428" N, 81° 50' 20.0364" E).

*Cyperus digitatus* Roxb., Fl.Ind. 1: 209. 1820; C.B. Clarke in Hook. f., Fl. Brit. India 6: 618. 1893; Prain, Beng. Pl. 1145; Cooke, Fl. Bomb. 2: 873; Duthie, Fl. Gangatic Plain 3: 331. 1915.

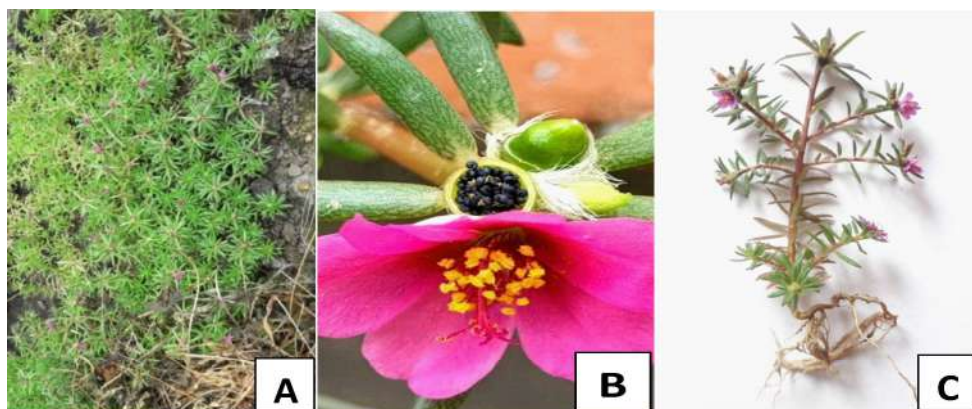
A tall glabrous herb, 2 to 4 fit high. Rhizome short horizontal. Stem triquetrous above, smooth, strianth, covered at the base with coarse not fibrous usually dark leaf sheaths. Leaf-blades liner tapering above to an acuminate apex, variable in length and width, some time as long as stem, often shorter up to 0.5 in. broad, smooth, midrib well marked and keeled below, numerous lateral veins. Inflorescence a compound umble of spiks, primary

rays 0.5 to 7 ins. Long very unequal in same inflorescence; primary bract 6 to 8, leaf like often broad at the base, unequal in length and width the largest much longer than the rays; secondary bracts narrower. Spike 1 to 2 ins. Long composed of numerous spikelets which for the most part do not overlap but spread at right angles. Stamens 2. Style long; stigma 3, long exserted. Nuts yellowish brown, oblong-ellipsoid, trigonus, 1-1.3 mm long, epiculate.

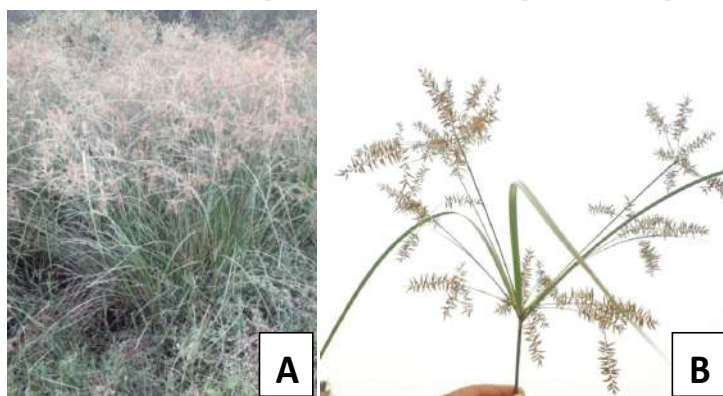
**Flowering and Fruiting:** May – December.  
**Type:** “East India”, Roxburgh; ex Hrb. Forsyth in Hrb. Bentham, (K!).

Common in moist and water logging places.

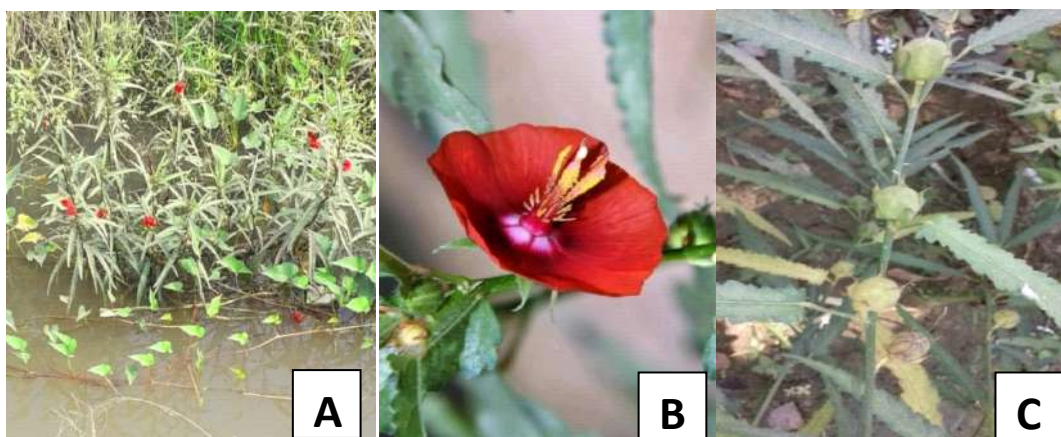
**Voucher specimens:** Dhanuha, Prayagraj, Nov.05.2021, P. Kumar: 35526 (Duthie herbarium), (25° 22' 14.664" N, 81° 50' 25.5156" E).



*Portulaca pilosa* L., A:- Habit & Habitat of plant, B:- Flower & capsule with ripen seeds, C:- A plant twig.



*Cyperus digitatus* Roxb. A:- Habit and Habitat, B:- Inflorescence



*Pentapetes phoenicea* L., A:-Habit & Habitat, B:-A flower, C:-Fruiting twig

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