

Solanum americanum Mill. (Solanaceae) An addition to the flora of Rajasthan: In arid and semi-arid region of India

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Abstract

The *Solanum americanum* Mill. belongs to the family Solanaceae. So far, the distribution of this species has been recorded from Uttar Pradesh, Punjab, Madhya Pradesh and part of southern Indian states. This paper deals with the information about *Solanum americanum* Mill. Which has been reported first time from the state of Rajasthan, India. This article visualizes a brief citation, description, phenological data, photo plates, illustrations, distribution maps and diagnostic key of the species.

Keywords: *Solanum*, solanaceae, ganganagar, Kota, Jaipur, Bharatpur and Rajasthan

1. Introduction

Rajasthan is the largest State of India and well known for its bio-geographical habitats viz. arid and semi-arid. Rajasthan state is situated between 23°3' and 30°12' N latitude and 69°30' and 78°17' E longitude. The total land area of the state is about 3,42,239 km². The average annual rainfall in the state is 525-675 mm, and the annual precipitation in different tracts of Rajasthan varies from 13 mm to 1766 mm. Within these arid and semi-arid habitats around 2000 different flowering plants are recorded. These unique habitats always attract plant lovers for its floral diversity. Hence various papers on plants diversity with their ecological and taxonomical information are available: Bhandari (1978); Puri *et. al.* (1964); Sharma & Tiagi (1979); Shetty & Singh (1991); Sharma *et. al.* (2005); Singh & Singh (2006) and Singh & Srivastava (2007) [1,2,3,4,5,6,7], Kotia (2008) and Kotia *et. al.* (2008) [8,9] have also published a detailed floristical account for the natural habitat in Rajasthan, India. Similarly, in recent years Kotia (2014), Yadav & Meena (2016), Tiwari *et. al.* (2016) and Dhakad *et. al.* (2019) [10,11,12,13] has further described little more taxonomical research work for the Rajasthan State.

The Angiosperm members of Solanaceae family are spread in tropical and subtropical regions. Solanaceae represented around 100 genera and 2500 species broadly distributed all over the world. Within India around 29 genera and 108 species are distributed (Kalidas & Panda, 2019) [14]. The *Solanum* genus is represented with 49 species which are spread all over India. Amongst these 49 species only 11 species are recorded from Rajasthan. Recently *Solanum americanum* Mill. has also been reported by Shaikh and Tiwari (2017) [15] from Madhya Pradesh (India).

2. Material and Methods

During botanical exploration in different parts of Rajasthan, the plant specimens were collected from different Districts viz. Jaipur, Bharatpur, Kota and Ganganagar (Fig.-1). All the specimens were collected from the edges of agricultural fields. After critical examination of the species with the help of various literature it has been concluded that these specimens belong to *Solanum americanum* Mill. For identification key to species, detailed morphological

description, phenological data, field photographs (Fig.-3) and illustrations (Fig.-4) are mentioned. The specimens were deposited in the RUBL.



Fig 1: Showing the Map location of *Solanum americanum* Mill. Collection point from Rajasthan State.

3. Taxonomic description

Solanum americanum Mill.

Annual herb upto 40-70 cm height. Stem- erect, branched, green or purple, angular or dentate ridges carried down from the base of the petiole. Leaves- simple, alternate, ovate-lanceolate to lanceolate varying in size 4-6.5 cm long × 2-4 cm broad, glabrescent to moderately pubescent, apex acute, base cuneate, leaves margin entire to sinuate, petiole 1-2 cm long. Inflorescence- extra axillary, umbellate cyme of 3-4 flowered, peduncle 0.8-2.5 cm long, erect, pedicels 5-10 mm long, pedicel erect in fruiting stage, sparsely pubescent, flowers regular, pentamerous, complete, actinomorphic. Calyx- lobes rounded or obtuse, 1- 2 mm long, green, finally recurved away from mature berries, persistent, macrescent. Corolla- 5- lobed, ovate, 8-9 mm long, white or flushed purple, outside of petal purple colour marking distinguish, stellate with yellow-green basal star, apex acute, reflexed.

Stamens- yellow, 5 in number, filaments ca. 0.5 mm long, Anthers- connivent (convergent apically without fusion), oblong, dithecous, 1.5- 2 mm long, basifixed, apical dehiscence. Style- about 3-4 mm long, densely villous at the lower half, exerted beyond the anthers up to 1.5 – 2 mm. Stigma- capitate, green. Ovary- globose, ca. 1.5 mm long. Berries- Berries spherical, shiny purplish opaque cuticle - black, 5-8 mm in diameter, fall off when ripe. Seeds- 1.0 – 1.5 mm long, light bone color (Figure-3 and Figure- 4).

Flowering & Fruiting: October to February.

Specimens examined: Dr. Amit Kotiya; species collected from Jaipur District (RUBL- 211730, Date: 10/12/2019); species collected from Bharatpur (RUBL- 211731, Date: 30/12/2019); species collected from Kota District, (RUBL- 211736, Date: 15/02/2020) and species collected from

Ganganagar District (RUBL- 211737, Date: 08/02/2020) from Rajasthan, India.

4. Key to species

Peduncle 4-8 flowered, Flowers white, petal without purple colour marking, Berries usually longitudinally ovoid, red-orange with translucent cuticle..... *S. villosum*

Peduncle more than 10 flowered, Flowers white, petal without purple colour marking, Berries, broadly ovoid, matt black, dull opaque cuticle *S. nigrum*

Peduncle 3-4 flowered, Flowers white to purplish, petal with purple colour marking, Berries spherical, purple to black with shiny opaque cuticle.....*S. americanum*



Fig 3: A- Plant habit in nature, B- Inflorescence, C- Fruits.

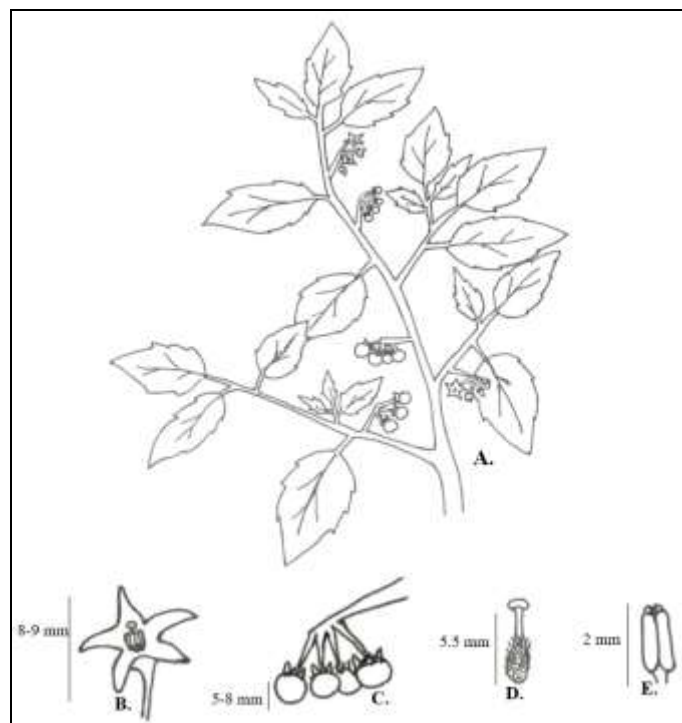


Fig 4: Illustrations of *Solanum americanum* Mill. A. Twig B. Single Flower C. Fruits. D. Stamen E. Anther.

5. Acknowledgements

The authors are grateful to the Head, Department of Botany, University of Rajasthan, Jaipur and Head of Forest, Rajasthan State Forest Department, Jaipur for their unfailing encouragement and support.

6. References

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