

Rediscovery of *Salix obscura* Andersson (Salicaceae) from its type locality of Sikkim Himalaya after a century

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Abstract

This paper deals with the rediscovery of *Salix obscura* Andersson (Salicaceae) from its type locality. The species is re-collected from Lachen valley of Sikkim Himalaya in India after a long gap of 121 years. A detailed description of the species is presented along with illustration. Moreover, photographs from fields and herbarium are also provided to facilitate its identification in the living as well as in preserved conditions.

Key words: Re-collection, *Salix obscura*, Sikkim

INTRODUCTION

During the revisionary study of Indian Salicaceae, several field trips were undertaken in the Sikkim Himalayan region during 2005 to 2008. An interesting as well as uncommon species of *Salix* was collected from Lachen valley of Sikkim, India. The specimen is identified as *Salix obscura* Andersson through morphological studies and literature survey. Moreover, the identity was confirmed after studying the type specimens from Kew. Apart from Sikkim, *Salix obscura* Andersson is distributed in Nepal (Kimura 1982; Press *et al* 2000), Bhutan (Grierson & Long 1983) and China (Hao 1936; Fang *et al* 1999).

This species was first described by Nils Johan Andersson (1868) based on a female specimen collected by Joseph Dalton Hooker from Lachen, Sikkim on June 3, 1849. Hooker was not confirmed about its identity and he wrote "*Salix (viminalis L. affinis)*" in ink on the printed herbarium label. The date and exact place of collection was mentioned in a second slitted field label. Next collection of this taxon from the same locality was made by Robert Pantling [*Pantling s.n.*, Accn. no. 443792 (Fig. 1, A) and 443793 (Fig. 1, B); CAL] in May, 1885. Hooker (1888) had also mentioned the collection of Pantling. Thorough scrutiny of subsequent literature (Schneider 1916; Hao 1936; Kimura 1966, 1971, 1975, 1982; Grierson & Long 1983; Fang *et al* 1999; Press *et al* 2000) as well as searching of herbarium sheets housed in different Indian herbaria including CAL, BSHC, APFH, ASSAM, NEHU, DD, BSD, LWG, RRLH, KASH, BSA, MH, BSI etc. it has become apparent that after Pantling, no further collection of this species was made from its type locality. Incidentally, a specimen collected by W.W. Smith & G.H. Cave [*Smith & Cave* 2829 (Fig. 1, C)] from Lachen valley in July 1909 had been come across in CAL. The collectors were not confirmed about its identity and they wrote "*Salix sp. near obscura*" on the herbarium label as well as in their

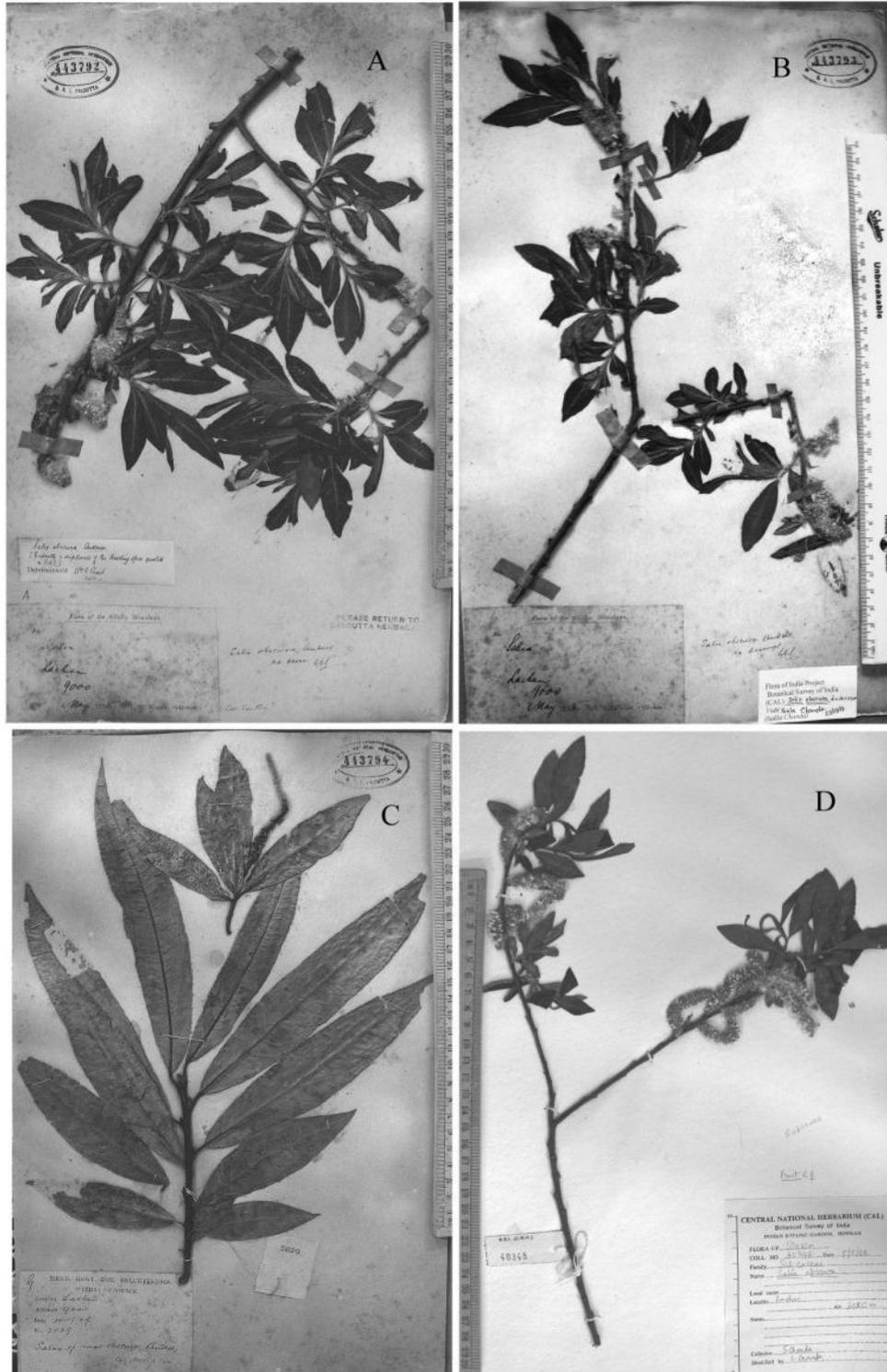


Figure 1: A. *Salix obscura* (Pantling s.n. Accn. No. 443792, CAL); B. *Salix obscura* (Pantling s.n. Accn. No. 443793, CAL); C. Unknown Specimen of *Salix* sp. (Smith & Cave 2829, CAL); D. *Salix obscura* Andersson (Chanda 40348, CAL)

publication (Smith & Cave 1911). The specimen is without flowers and fruits. It is represented by two twigs; one is with some leaves only and another one with severely brittle mature infructescence and a few leaves. After detailed examination of leaf characters in terms of shape, size, surface, colour, venation pattern, number of secondary veins etc., it has been found that they are quite different from that of *Salix obscura*. Due to lack of flower and fruit the exact species, however, could not be determined but it is confirmed that the specimen (Smith & Cave 2829) is not *Salix obscura*.

In most of the literature only female flowers of the plant are described except in *Flora Bhutan*. Male plants are quite rare in the field and were not known until 1983. A brief description of the male flowers is first provided by Grierson & Long (1983). Many exploration trips were undertaken in Sikkim-Darjeeling Himalaya by Botanical Survey of India and other institutions from time to time, but no collection of *Salix obscura* could be made from this region. During the field surveys in Sikkim from 2005 to 2008, the first author found this species only from three places and all of those are female plants. The first and second specimens have been collected from Lachen (*Chanda* 40348) and on way to Chungthang from Lachen (*Chanda* 40353) respectively in 2006. The third specimen (*Chanda* 40378) has been collected in between Lachen and Thangu at an altitude of 12000 ft [3658 m] in the year 2008. These three locations situated around Lachen within 30 km distant. So the collection made from Lachen (*Chanda* 40348) (Fig. 1,D) constitute the re-collection of the species from its type locality after a gap of long 121 years. This also confirms it's very rare and restricted occurrence in the area.

When the world distribution of this Sino-Himalayan species is studied it has been noticed that its distribution is restricted from Nepal to China. It has not been reported from any parts of Western Himalaya. Moreover, this taxon is recorded in India only from one place i.e. Lachen of Sikkim. No specimens have been traced from other adjacent state like West Bengal (Darjeeling Himalaya) or Arunachal Pradesh.

A detailed description of the specimen along with photographs and illustration are provided to facilitate its easy identification.

TAXONOMIC TREATMENT

Salix obscura Andersson in DC., Prodr. 16(2): 269. 1868; Hook. f. in Hook. f., Fl. Brit. India 5: 632. 1888

[Figs. 2 & 3]

Type: INDIA. Sikkim: Lachen, 9000 ft elev., 3 June 1849, *J.D. Hooker s.n.* (K, image! barcode K000335049).

Diffuse *shrub*, 2-5 m high; bark blackish, nearly smooth. *Branches* stout, suberect to erect, divaricate, greyish, glabrous to sparsely pubescent; young branchlets tomentose; vegetative buds ovoid, *ca.* 3 mm long, chestnut-red, caducous; stipules linear, *ca.* 0.5 mm long, caducous. *Leaves* alternate, simple, petiolate; petioles slender, terete, 2 – 4 mm long, pubescent pale green to greyish. Leaf blades lanceolate to linear-lanceolate, 3 – 5 cm long and 1 – 1.7 cm wide at the middle, pubescent on both the surfaces, cuneate at base, acute at apex, entire or sometimes revolute at margin, leathery, midvein prominent, raised beneath, pubescent; secondary veins 11 – 15 pairs, indistinct on the adaxial surface, subopposite to alternate or rarely opposite, dull green above, reddish-grey and glaucous beneath. *Catkin* solitary, axillary, appearing slightly before or simultaneously with the leaves. *Male catkins* not seen. *Female catkins* slender, terete, thick, 2 – 3 cm long and 0.5 – 0.7 cm diam., erect to sub-erect,

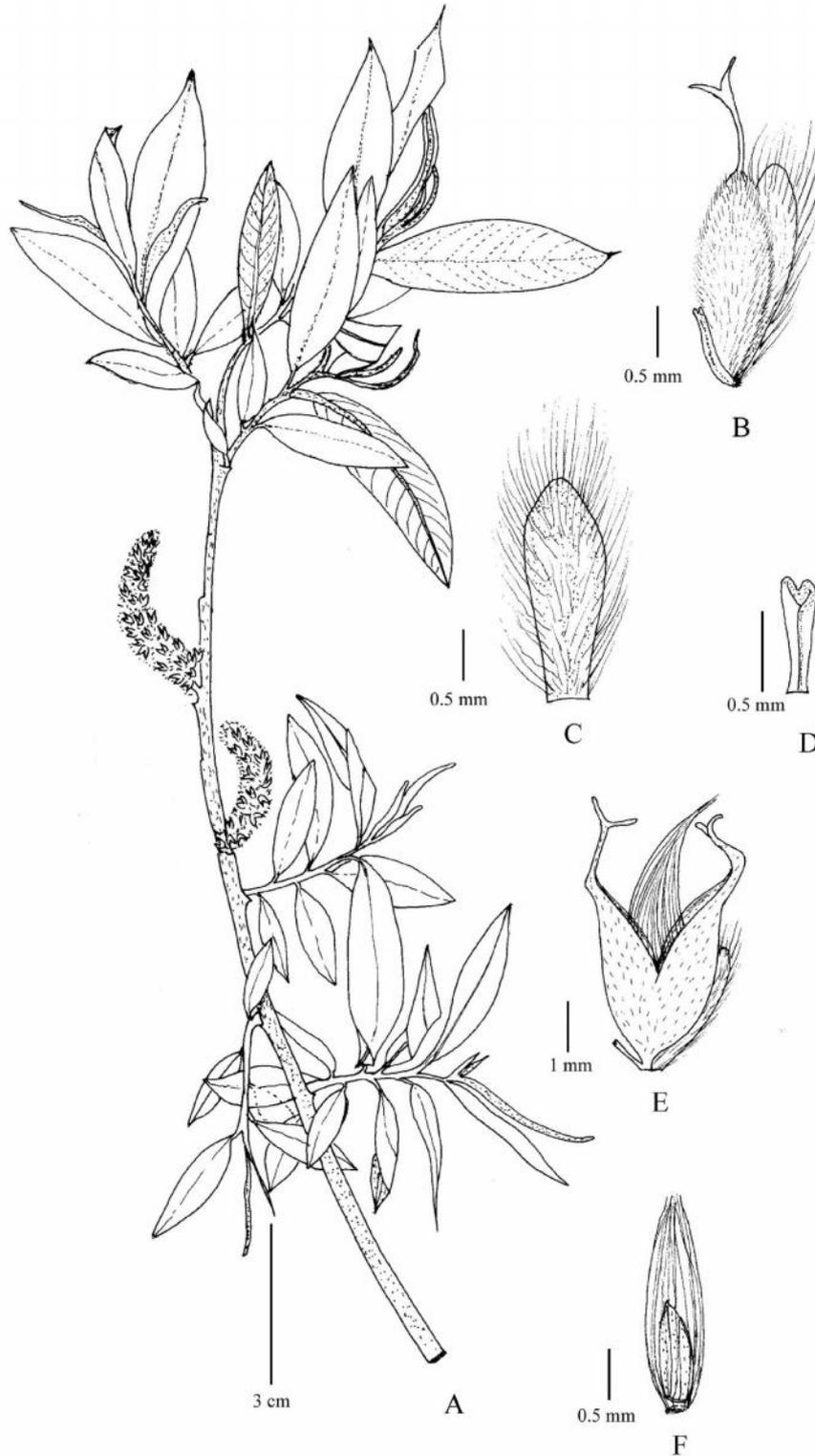


Figure 2. *Salix obscura*: A. Habit (female twig); B. Female flower; C. floral bract; D. Gland; E. Fruit (dehisced); F. Seed [Drawn by Sukla Chanda from Chanda 40353]



Figure 3: *Salix obscura*: A. Habit (female plant); B. Leafy twig; C. Female catkins; D.

curved, very compact, greenish, sessile, usually provided with basal leaves; rachis pilose; female flowers sessile, 3 – 3.5 mm long, bracteate; bract 1, oblong-spathulate to oblanceolate, 2 – 2.5 mm long and 0.75 – 1 mm wide above the middle, extended up to the length of the ovary, pilose on both the surfaces, narrowed and tapered towards base and finally truncate, obtuse to rounded at apex, sometimes slightly notched at apex, entire at margin, vein indistinct, membranous, reddish with black tip; glandular; gland 1, posterior, opposite to the bract, attached at the base of the ovary, upper portion free, curved; oblong, 0.7 – 1 mm long, little notched or lobed at apex, reddish, glabrous; 1-veined; vein distinct, longitudinal, little forked at apex, fleshy and juicy; carpels 2, lateral, syncarpous; ovary superior, ellipsoid to ovoid-conical, 1.5 – 2 mm long, gradually attenuate in style, white silky-tomentose, sessile; style slender, 1 – 1.5 mm long, as long as or 1/2 of the length of the ovary; stigmas 2, shortly divided, erect, entire, yellow. *Fruiting catkin* (infructescence); 3 – 5.5 cm long and 0.7 – 1 cm diam, dense; capsules ovoid-conical, 3 – 6 mm long, 2-valved; each half navicular after dehiscence; dehiscence longitudinal, septicidal; walls greenish-brown, silky-puberulose; with persistent style, stigmas above and bract, gland at base; sessile; seeds 4 – 6, ovoid-oblong, 1 – 1.2 mm long, olive-green, with tuft of persistent hairs at base; hairs 2 – 3 mm long, flexible, spreading and exceeding usually double the length of the seed length, white-silky.

Flowers & fruits: April – July

Habitat: Grows near streamside around 2500 m and along the road sides of temperate and subalpine mountains and hill slopes associated with *Rhododendron*.

Distribution: India (Sikkim); Nepal; Bhutan; China.

Exiccatae: INDIA: Sikkim: Lachen, 9000 ft. (ca. 2743.23 m), May, 1885, frt., *Pantling s.n.*, Accn. no. 443792 (CAL); North District, Lache, 3050 m, 05.05.2006, female and frt., *Chanda* 40348 (CAL); On way from Lachen to Chungthang (27°68' N, 88°59' E), 2438 m, 05.05.2006, female & frt., *Chanda* 40353 (CAL); Lachen Road, towards Thangu, 3657.6 m, 28.04.2008, female, *Chanda* 40378 (+ 2 duplicate, CAL).

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