

GENUS *VINCETOXICUM* VON WOLF (ASCLEPIADACEAE) IN PAKISTAN

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Abstract

Six species of *Vincetoxicum* von Wolf are recognised from Pakistan, including two new species, *V. stocksii* Ali & S. Khatoon and *V. sakesarensis* Ali & S. Khatoon.

Introduction

Vincetoxicum von Wolf is a small genus comprising of about 10-20 species, distributed in temperate parts of Europe and Asia (Willis, 1973). The name *Vincetoxicum* (meaning 'to conquer or subdue poison') probably refers to its supposed virtues (Bailey, 1950). Economically the genus has little importance. *Vincetoxicum arnotianum* (Wight) Wight (syn. *Cynanchum arnotianum* Wight) is considered as insecticidal, the dried and powdered leaves are used for killing maggots in wounds of domestic animals (Sastri, 1950, Chopra et al. 1956, Uphof, 1968). Root of *V. hirundinaria* Medicus (syn. *Cynanchum vincetoxicum* (L.) Pers.) is used for dropsy, considered as diaphoretic and diuretic, also employed in veterinary medicine (Uphof, 1968). The plant is said to be poisonous, since the root contains a glycoside Vincetoxin which induces haemolysis (Sastri, 1950; Chopra et al., 1956).

Hooker f. (1883), Parker (1956) and Kitamura (1960) have treated the species of *Vincetoxicum* under *Cynanchum* L. On the other hand, Decaisne (1844), Boissier (1879), Bullock (1958), Rechinger (1970), Markgraf (1972) and Browicz (1978) regard *Vincetoxicum* as distinct from *Cynanchum* L. *Vincetoxicum* differs from *Cynanchum* in having simple and deeply divided corona with more or less fleshy or coriaceous segments without internal processes and connate at base by a membranous structure, whereas in *Cynanchum* the corona is usually tubular (sometimes divided), membranous and with internal processes or scales. In view of this, we have followed the later interpretation.

The genus is represented by six species in Pakistan, distributed in NWFP, upper parts of Punjab, Azad Kashmir and Baluchistan.

Vincetoxicum N.M. von Wolf, Gen. Pl. 130 (1776); Rechinger f., Fl. Iran. 73: 10 (1970) pro parte. Markgraf in Tutin et al., Fl. Europ. 3:71 (1972).

Rhizomatous herbs or under-shrubs, young branches often twining. Leaves opposite, petiolate, lamina suborbicular to lanceolate. Flowers in axillary few flowered cymes. Corolla lobes twisted in bud. Corona simple, 5-lobed or partite, without internal processes, free or fused at the base only. Pollinia solitary in each loculus, pendulous, without a pellucid margin. Follicles smooth, fusiform.

Key to the species:

1. Corolla lobes hairy within. 3
1. Corolla lobes glabrous within. 2
2. Leaf dark green above, light green below,
2-3 times as long as broad 1. *V. hirundinaria*
2. Leaf ± of similar colour on both sides,
3-5 times as long as broad 2 *V. cardiostephanum*
3. Coronal lobes less than ½ the corolla lobe 4
3. Coronal lobes more than ½ the corolla lobe 3. *V. canescens*
4. Flower clusters axillary, sessile or shortly
pedunculate; corona lobes rhomboid or deltoid. 5
4. Flower clusters conspicuously pedunculate,
(particularly in lower part of stem),
corona lobes linear or narrowly ovate 5. *V. stocksii*
Inflorescence shortly pedunculate, corona lobes broadly deltoid, tuberculate,
convergent 6. *V. sakesarensis*
Inflorescence sessile, corona lobes rhomboidal,
not tuberculate, divergent 4. *V. amottianum*

Vincetoxicum hirundinaria Medicus, Hist. Comment. Acad. Elect. Theo-d. Palat. Mannheim Phys. 6:404 (1790); Markgraf in Tutin et al., Fl. Europ. 3:72 (1972).

Asclepias vincetoxicum L., Sp. Pl. 216 (1753).

Vincetoxicum officinale Moench, Meth. 317 (1794) sensu stricto; Dcne. in Dc., Prodr. 8:523 (1844) p.p.; Boiss., Fl. Or. 4:54 (1879).

Cynanchum vincetoxicum (L.) Pers., Syn. Pl. 1:274 (1805); Hook. f., Fl. Brit. Ind. 4:22 (1883); Stewart in Nasir and Ali, (Eds.) Ann. Cat. Vasc. Pl. W. Pak. & Kashm. 586 (1972).

Stem erect, up to 120 cm long, puberulent to subglabrous. Leaves 6-10 x 2.5-5 cm, ovate to ovate-lanceolate, subglabrous to pubescent, specially on veins and margins. Petiole 5-11 mm. Flowers 6-15 clustered in leaf axils. Calyx 1.5 mm long, lobes linear, pubescent. Corolla glabrous within, white, yellow or greenish. Corona lobes sessile. Follicles 5-7.5 cm x 8 mm fusiform, acuminate, glabrous.

Type: Described from Scandinavia.

Citation of specimens:

Pakistan: Hazara, Kagan valley, 9800 ft. 9.7.1897, INAYAT 19940 (K); Nathia, July 1907, H. Deane (K); Bagh, 19.6.1956, COLLECTOR UNKNOWN 1507 (KUH); Above Gulmarg, 9-10,000 ft., 31.7.1892, J.F. DUTHIE (K); Basaoli, 8000 ft., C.B. CLARKE: 31523 A (K); Sonamarg, 9000 ft., R. R. STEWART: 7306 (K, RAW); Sarpura Nullah near Skardu, ABDUL GHAFOR: 567 (KUH); Razmak, N. ALI: 1035 (RAW); Murree Hills, Changla Gali, 8000 ft., MOHINDER NATH: 336 (RAW); Azad Kashmir, Poonch, near Trappar, below Kail, 17.9.1952, A. RASHID KHAN: s.n. (RAW); Pir Kanthi, Uri Range, 9000 ft., 17.9.1952, JAN MOHAMMAD: s.n. (RAW). Distribution. Most of Europe including European Russia, West Siberia, Turkey, Caucasus, Kashmir, Pakistan (Hazara, Waziristan), Himalayas up to Sikkim (Hooker f., l.c.) – Flowering Period: May – July. – A very variable species, in which some workers (Markgrath l.c.) have recognized a number of subspecies, others (Pobedimova in Fl. U.R.S.S. vol. 18. 1952) have treated some of these as species. We have accepted the taxon in a broader sense.

2. *Vincetoxicum cardiostephanum* (Rech. f.), Rech. f., Fl. Iran. 73:14. tab. 7. (1970).

Cynanchum cardiostephanum Rech. f. in Anz. Math.-Nat. Kl. Osterr. Akad. Wiss. 105:241. (1968).

Glabrous perennial with many branches from the base, erect, 10-15 cm tall. Leaves c. 20-50 mm x 7-10 mm, ovate lanceolate, entire, yellowish green, petiole 1-1.5 mm. Flowers in axillary cymes. Pedicel 1-6 mm long, glabrous. Calyx 2.5 mm long, teeth lanceolate, acute, minutely ciliate. Corolla c.4 mm long (at the time of anthesis), pale green, lobes glabrous on the inner side, tube hairy in the upper part. Corona lobes cordate truncate, emarginate. Fruit not seen.

Holotype: Afghanistan, Jaji, in declivibus jugi Narai Kotal versus Chakmani, in apertis querstorum (Qu. Baloot), substr. serpentin., 2100 m, 4.4. 1967, RECHINGER: 35614 (W).

Citation of Specimens:

Pakistan: Kurram valley, 1894, HARSUKH: 15402 (K, RAW). – Distribution: Afghanistan, Pakistan (Kurram valley). – Flowering Period: April.

3. *Vincetoxicum canescens* (Willd.) Dcne. in DC., Prodr. 8:523 (1844); Boiss., Fl. Or. 4:52 (1879).

- Asclepias canescens* Willd. in Ges. Naturf. Fr. Neu. Schr. 3:418 (1801);
Cynanchum glaucum Wall. in Wight, Contrib. 58(1834), Hook. f., Fl. Brit. Ind.
 4:22 (1883).
Cynanchum canescens (Willd.) K. Schum. in Pflanzenfam. 4. 2.252 (1895)
Vincetoxicum glaucum (Wall.) Rech. f., Fl. Iran 73:13 (1970).

Perennial under shrub, c. 15-70 cm tall, erect to twining, pubescent. Leaves 4-7 cm x 1.8-6 cm, ovate-lanceolate or cordate, glabrous to pubescent, entire, acute to acuminate. Flowers clustered in leaf axils. Pedicel 4-5 mm long. Calyx lobes c. 1.5 mm long, lobes oblong to lanceolate acute. Corolla c.4 mm long, cream to greenish, lobes hairy on the inner surface. Corona lobes 5, obtuse. Follicles 5-6 cm x 1.1-1.5 (-2) cm, gradually tapering towards the tip.

Lectotype: Herb. Willdenow 5265 (B).

Citation of Specimens:

Pakistan: Hazara, Batal, 1.9. 1899, INAYAT (K); Swat, Batain above Ushu, 9000 ft., R. R. STEWART & A. REHMAN: 25301 (K;RAW); Kashmir, Rattu, Kamri nala, Astor, INAYAT: 25691 (K); Skardo-Dras, 8800 ft., petals green, acute, C. B. CLARKE: 30512A (K); Balistan, Paskyum, 9600 ft., flowers greenish, B. B. OSMASTON: 129 (K); north of Kamri Pass, above Shankergarh, c. 10,000 ft., R. R. STEWART: 22773 (K); Murree Hills, Bastan, 7000 ft., flowers cream, 26.6.1922, R. R. STEWART (K;KUH).
 – Distribution: Nepal, Western Tibet, Kashmir, Pakistan. Afghanistan westward to Greece. – Flowering Period: June-September. – A variable species.

4. *Vincetoxicum arnottianum* (Wight) Wight, Icones Pl. Ind. Or. t. 1614 (1850); Dcne. in DC., Prodr. 8:523 (1844); Rech. f., Fl. Iran. 73: 12 (1970).

Cynanchum arnottianum Wight, Contrib. Bot. India 58 (1834); Hook. f., Fl. Brit. Ind. 4:22 (1883); Boiss., Fl. Or. 4:52 (1879).

Perennial, c. 30-60 cm tall, with many branches from the base, pubescent. Leaves 3-6 cm x 8-30 mm, ovate-lanceolate, margin entire, acute, pubescent, particularly on the nerves on both sides. Petiole 4-7 mm long, pubescent. Flowers clustered in the leaf axils. Pedicel 2-4 mm long, pubescent. Calyx 2 mm long, puberulous, teeth acute. Corolla c. 3.5-4.0 mm long, purple, lobes pubescent on the inner side. Corona lobes 5, rhomboidal, obtuse. Follicles 5-6 x c.1 cm, tapering towards acuminate tip.

Type: 'In itinere ad Cashmere,' ROYLE (K).

Citation of Specimens:

Pakistan: Malakand Agency, near Batkhela, among granite rocks and field borders,

E. NASIR & M. A. SIDDIQI: 4401 (KUH); Butkhela, 3000 ft., M. A. SIDDIQI: 27127 (RAW); Swat, Miadam, c. 6000 ft., dark purple flowers, Y. NASIR: 6826 (KUH); Swat, Thana, shrub, on hill slopes, flowers dark purple, M. A. SIDDIQI & Y. NASIR: 6857 (KUH); Kaghan, Bhouja, 3.7. 1899. DUTHIE (K); Dunga gali, below main road, June 1907, H. DEANE (K); Pahlgam, c. 8000 ft., R.R. STEWART: 5357 (K); Kashmir, Kullogam, FALCONER: 2743 (K); Kashmir, Shapiyon, 7000 ft., C. B. CLARKE: 28584 A, C (K); near Shapiyon, 6000 ft., J.R. DRUMMOND: 13948 (K); Shinkiari, c. 3500 ft., dark purple flowers, E. NASIR, SIDDIQI & ZAFAR: 4422 (RAW); Sargodha Dist., Sakesar, IFTIKHAR AHMED: 2781 (RAW); Poonch Mandi, Kotli, A. RASHID: 27007 (RAW).

Distribution: Pakistan (Hazara), Kashmir. – Flowering Period: April to July.

5. *Vincetoxicum stocksii* Ali & S. Khatoon, sp. nov. (Fig. 1,A-D)

Vincetoxicum luridinum Stocks, *nomen nudum*.

Perenne. Frutescens vel suffrutescens, 30-100 cm alti. Caules pubescentes. Folia opposita, integra, (2.5)-5-7 cm x 8-27 mm, ovata to ovato lanceolata, utrinque minutapubescentia, apica obtusa vel acuta. Cymae axillares pedunculatae, ramosae. Pedicelli 2-4 mm longi, puberuli. Calyx 1.5 mm longus, laciniis ovatis acutis, extus pubescentibus. Corolla campanulata, 3.5 mm longa, laciniis 2.5 mm longis deltoideis intus pubescentibus. Corona lobis 5 linearibus. Folliculi 4.5 x 1.3 cm.

Perennial shrub or undershrub, 30-100 cm tall, stem pubescent. Leaves opposite, (2.5)-5-7 cm x 8-27 mm ovate to ovate-lanceolate, minutely pubescent on both sides, entire, obtuse to acute. Flowers in pedunculate branched cymes. Pedicel 2-4 mm long. Calyx 1.5 mm long, divided almost to the base, lobes 0.5 mm broad, ovate, acute, densely hairy outside. Corolla campanulate, 3.5 mm long; tube 1 mm long, lobes 2.5 mm long, 1 mm broad, deltoid, retuse at apex, densely hairy within, left margin glabrous, tip straight. Corona lobes linear to ovate, incurved, longer than the column. Anther tips membranous, broad, stigma conical. Follicle 4.5 x 1.3 cm.

Holotype: Near Bharat Khel on way to Zhob, 15.7.1978, erect shrub, 1 m., tall, S. NAZIMUDDIN & SULTANUL ABEDIN: 860 (KUH).

Citation of specimens:

Pakistan: Quetta, in valle 12 km. n. Murgha Kibsai, 30°48'N, 69°25' E, substr., Tonschiefer, 1600 m, K. H. RECHINGER: 29803 (K); Fort Sandeman, 6.5. 1897, HARSUKH: 20589 (K); Kalat, Dasht Baddo, 7000 ft., dry stream bed, 21.6. 1962, R. R. STEWART: 752 (K); c. 12 miles from Surab on way to Khuzdar, gravel sandy clay, flower purple, grey, 8.4. 1971, SULTANUL ABEDIN: 7124 (KUH); c. 20 miles from Khuzdar on way to Surab, sandy loam, 5.6. 1970, M. QAISER & A. GHAFOR:

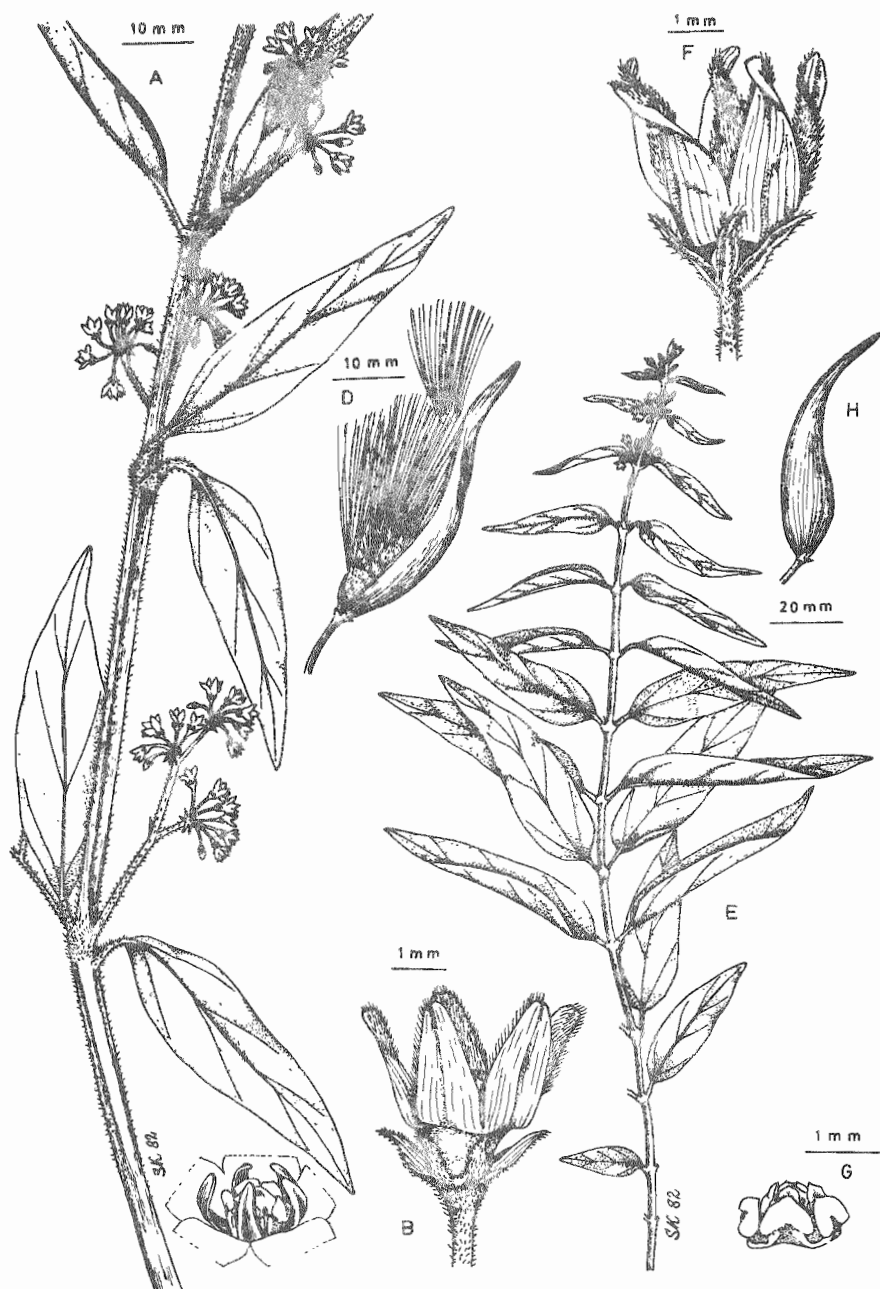


Fig. 1 *Vincetoxicum stocksii*: A. flowering branch; B. flower; C. centre of flower with corona and gynostegium (hairs of corolla omitted); D. dehiscent fruit. *Vincetoxicum sakesarense*: E. flowering branch; F. flower; G. corona and gynostegium; H. fruit.

1212 (KUH); Kalat, 24 km, S. Surab, 28°29' N, 66°19' E, K. H. RECHINGER: 27383 (K); Nag, rest house, soil wet sandy clay, flower yellowish purple with a dark purple centre, corona purple, SULTANUL ABEDIN: 6844 (KUH); Baluchistan, common above 3000 ft., 1849, J. E. STOCKS: 721 (K). - Distribution. Endemic to Baluchistan. - Flowering Period: April to May. - *Vincetoxicum stocksii* Ali & S. Khatoon is related to *V. arnotianum* (Wight) Wight from which it differs in having a conspicuously pedunculate inflorescence and corona lobes linear or narrowly ovate, longer than the staminal column and incurved, whereas in *V. arnotianum* the inflorescence is not pedunculate and the corona is rhomboidal, shorter than the staminal column and without incurved lobes.

6. *Vincetoxicum sakesarensis* Ali & S. Khatoon, sp. nov. (Fig. 1. E-H).

Perenne, caules 22-42 cm alti, pubescentes. Folia opposita, integra, (2.5)-5.5-7.9 cm x 8-18 mm, ovato-lanceolata, ± glabra, apice integro. Petioli 4-8 mm longi. Cymae pauciflorae, pedunculo 1.5 mm longo. Pedicilli 2-3 mm longi. Calyx 2 mm longus, laciniis lanceolatis extra pubescentibus. Corolla campanulata, 4 mm longa; lacinae 3 mm longae, ovatae, acutae. Corona lobis 5 deltoideis. Folliculi c. 6.5 cm x 1 cm.

Perennial, erect, 22-42 cm tall, roots long, many from the woody base, branches pubescent. Leaves opposite (2.5)-5.5-7.9 cm x 8-18 mm, ovate-lanceolate, almost glabrous with a few hairs on the midrib, entire, acute. Petiole 4-8 mm long. Flowers clustered in the upper leaf axils, peduncle 1.5 mm, pubescent. Bract c. 1.5 mm long, ovate-lanceolate. Pedicel 2-3 mm long, pubescent. Calyx 2 mm long, divided almost to the base, lobes 0.5 mm broad, narrow lanceolate, sparsely hairy outside. Corolla brownish, 4 mm long, campanulate, tube 1 mm long, lobes 3 mm long, 1.5 mm broad, ovate, acute, pilose within, left margin glabrous, tips twisted clockwise towards outside. Corona lobes tuberculate, broadly deltoid, subacute, equal or shorter than the column, convergent. Column very short, anther tips membranous, narrow deltoid, stigma conical, almost completely covered by the anther tips. Follicle c. 6.5 x 1 cm.

Holotype: Sargodha District, Sakesar hills, in protected area, 15.8.1972 M. QAISER & A.GHAFFOR, 4524 (KUH)

Citation of Specimens:

Sakesar, 29.9. 1951, ABDUR REHMAN: 287 K. U. (KUH; RAW). - Flowering Period: August. - Presently *Vincetoxicum sakesarensis* Ali & S. Khatoon is known only from the type locality. It differs from *V. canescens* (Willd.) Dcne. in having acute to subacute coronal lobes which are less than half of the corolla lobes. In *V. canescens* (Willd.) Dcne. the corona lobes are obtuse and more than half the length of corolla lobes.

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