Ann. Bot. Fennici 52: 340–344 ISSN 0003-3847 (print) ISSN 1797-2442 (online)
Helsinki 19 August 2015

Vinca ispartensis (Apocynaceae), a new species from Turkey

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Received 17 Feb. 2015, final version received 4 Aug. 2015, accepted 4 Aug. 2015

Koyuncu M., Ekşi G. & Özkan A.M.G. 2015: *Vinca ispartensis* (Apocynaceae), a new species from Turkey. — *Ann. Bot. Fennici* 52: 340–344.

Vinca ispartensis Koyuncu & Ekşi *sp. nova* (Apocynaceae) is described and illustrated. It grows in calcareous, stony locations in Isparta Province (southwest Anatolia, Turkey). *Vinca ispartensis* is morphologically close to *V. herbacea* and *V. soneri*; the diagnostic morphological characters of the three taxa are discussed. An identification key of the genus *Vinca* in Turkey is provided.

The genus *Vinca* (Apocynaceae) comprises the periwinkles of the temperate zone native to Europe, northwest Africa and southwest and central Asia. It contains six species: *V. difformis*, *V. erecta*, *V. herbacea*, *V. soneri*, *V. major* and *V. minor*, the last four being the species occurring in Turkey (Stearn 1973, 1978, Güner 2012, Koyuncu 2012). *Vinca herbacea* and *V. soneri* are native to Turkey, while *V. major* and *V. minor* are cultivated and naturalized in the country. During a botanical excursion to the Kızıldağ National Park in Şarkikaraağaç District in 2013, Kadir Terzioğlu and Faruk Canız discovered a hitherto unknown taxon, forming a small population on dry stony slopes. The decumbent and densely tomentose subshrubs with bluish flowers differ from the four species of *Vinca* currently recorded in Turkey.

Vinca ispartensis Koyuncu & Ekşi, *sp. nova* (Figs. 1–4).

HOLOTYPE: Turkey. Isparta: Şarkikaraağaç, Kızıldağ Milli Parkı, stony slopes. 1300–1700 m a.s.l., 28 April 2013 (flowering), *Kadir Terzioğlu & Faruk Canız* (AEF 26342). — PARATYPE: Same locality (fruiting), *Kadir Terzioğlu & Faruk Canız* (AEF 26765).

ETYMOLOGY: The species epithet is derived from the name of Isparta Province.

Perennial subshrub with woody rootstock, dying back completely to rootstock up each winter. Stems horizontal, unbranched, tomentose, 25–50 cm long; trailing shoots present. Leaves deciduous, subsessile or shortly petiolate, petiole 1–3 mm; leaf blade simple, entire, varying from elliptic to ovate, 2–40 × 1–18 mm, base cuneate, apex acute to obtuse, densely tomentose; pinnately veined; veins diverging from midrib at up to 30°. Inflorescences axillary, single-flowered. Calyx 5–15 mm; lobes narrowly lanceolate or linear, 4–10 mm, densely tomentose, 1/3 to 1/2 length of corolla tube. Corolla infundibular, blue or pale blue, 20–38 mm diam.; limb white to blue, 10–20 mm long; tube 9–19 mm long. Stamens 3 mm, inserted, ca. half way up corolla tube; filaments ca. 2 mm long, S-shaped bend; anthers tipped with trichomes on fertile regions

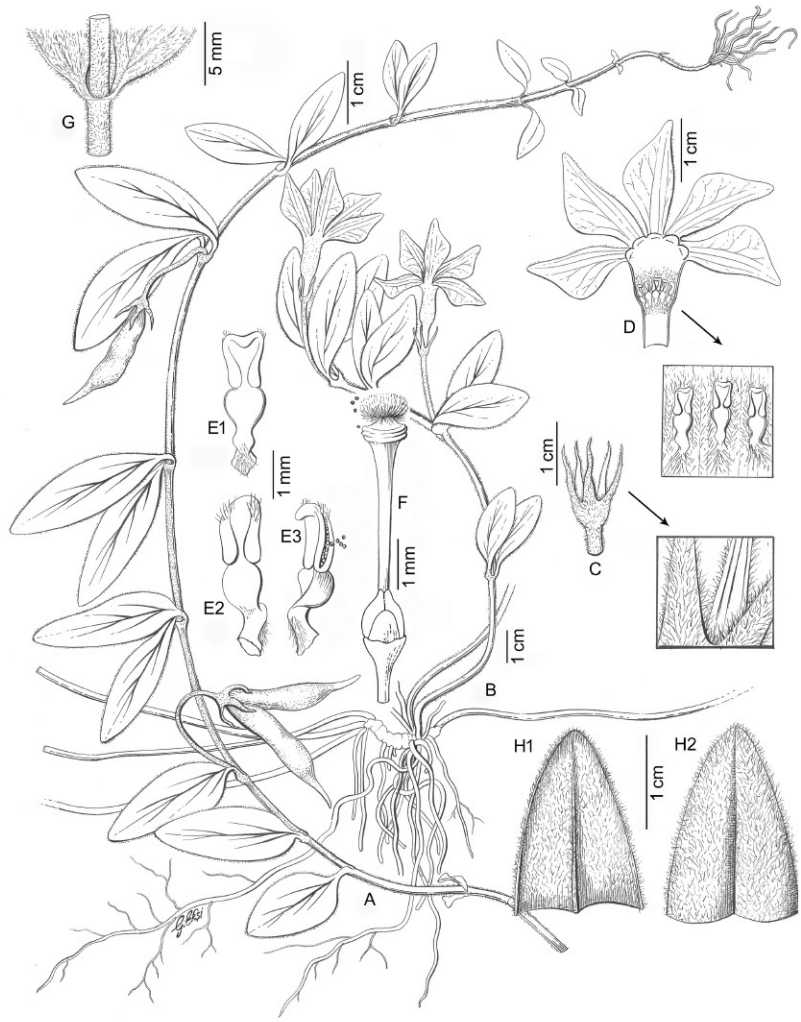

Fig. 1. *Vinca ispartensis* (from the holotype). — **A**: Plant in fruit (from the paratype). — **B**: Plant in flower. — **C**: Calyx. — **D**: Opened corolla. — **E1**–**E3**: Stamens. — **F**: Style. — **G**: Leaf attachment at node. — **H1**: Abaxial leaf surface. — **H2**: Adaxial leaf surface.

Fig. 2. Habit of *Vinca herbacea*.

Fig. 3. Habit of *Vinca ispartensis*.

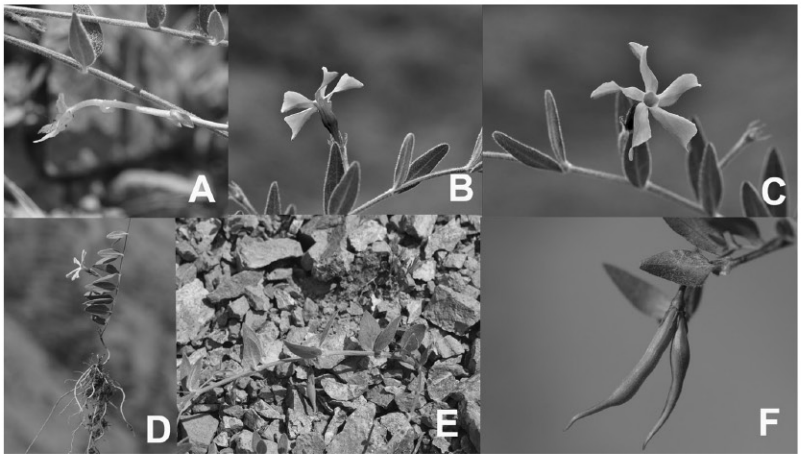

Fig. 4. *Vinca ispartensis*. — **A**: Trailing shoot. — **B** and **C**: Flower. — **D**: Roots. — **E**: Stem. — **F**: Fruit.

laterally on both sides, with short, incurved connective appendage, glabrous. Pistil 10–14 mm long; style slender and equalling anthers, stigma conical, with dense hair at apex. Fruit consisting of 2 slender follicles (legume-shaped), 1–3.5 cm, green, long beaked, tomentose; seeds 5–10 mm long, cylindric, gray, tuberculate. Flowering in April–May.

HABITAT: *Vinca ispartensis* grows on stony slopes and calcareous rocky places between 1300 and 1700 m a.s.l. amongst herb species such as *Erysimum*, *Erodium*, *Cerastium*, *Scorzonera*, *Centaurea*, *Thlaspi*, *Euphorbia*, *Fritillaria*, *Tulipa*, and trees such as *Cedrus libani*, *Juniperus excelsa* and *Quercus coccifera*.

Vinca major and *V. minor* are easily distinguished from the other Turkish *Vinca* species by their evergreen leaves and woody stems. According to Stearn (1973), *V. herbacea* has the widest distribution and the greatest variability among the congeners. Specimens vary in habit, size, leaf shape, in calyx length and scabridity, and in corolla size and colour. One of the areas of greatest variability is in eastern Turkey, where specimens with remarkably broad leaves occur (Stearn 1973). There are many reasons for the rich variation seen in these Turkish populations. Anatolia is a floristic migration route between southern Europe and southwest Asia; many taxa have their center of origin or diversity in Ana-

Table 1. Diagnostic characters among *Vinca ispartensis*, *V. herbacea and V. soneri.*

Character	*Vinca ispartensis*	*Vinca herbacea*	*Vinca soneri*
Growth form	subshrub	herbaceous	subshrub
Stem length (cm)	25–50	up to 20	25–50
Indumentum	densely tomentose	glabrous	glabrous
Leaf shape	elliptic to ovate	narrowly elliptic, elliptic, or lanceolate to ovate	elliptic to ovate
Calyx lobes	densely tomentose	shortly ciliate or glabrous and smooth at margin	glabrous
Pistil length (mm)	10–14	7–8	15–16
Seed length (mm)	5–10	11–14	10–12
Trailing shoots	present	present	absent
Petiole length (mm)	1–3	1–4	up to 1
Tube of corolla length (mm)	9–19	10–20	20–27
Follicle length (cm)	1–3.5	2.5–3.5	5–7

tolia; and it is the point of coalescence of three phytogeographical regions, the Euro-Siberian, Mediterranean, and Irano-Turanian. The endemism rate is quite high, largely driven by the climatic and topographical diversity of the region (Davis 1965, 1971).

Vinca ispartensis differs from other similar species by a range of unique characters (Table 1).

Key for the identification of *Vinca* species in Turkey

1. Plants herbaceous or subshrubs; leaf veins diverging from midrib at 10°–35° or 40°–60° angle 2
1. Plants evergreen shrubs; leaf veins diverging from midrib at 40°–60° angle 4
2. Trailing shoots absent; leaves 5–8 × 2.5–3.5 cm; leaf veins diverging from midrib at 40°–60° angle .. *V. soneri*
2. Trailing shoots present; leaves 0.6–5 × 0.2–3 cm; leaf veins diverging from midrib at 10°–35° angle 3
3. Plant glabrous, stems to 20 cm; leaves 0.6–5 × 0.2–3 cm; calyx lobes shortly ciliate or glabrous and smooth at margin; pistil length 7–8 mm; seed length 11–14 mm .... *V. herbacea*
3. Plant tomentose, stems 25–50 cm; leaves 1–4 × 0.4–1.8 cm; calyx lobes densely tomentose; pistil length 10–14 mm; seed length 5–10 mm ..... *V. ispartensis*
4. Leaves and calyx ciliate; leaf blades subcordate or rounded at base; calyx lobes 6–8 mm long ..... *V. major*
4. Leaves and calyx glabrous; leaf blades usually cuneate at base; calyx lobes 3–4 mm long ..... *V. minor*

ADDITIONAL SPECIMENS EXAMINED (all from Turkey): — *Vinca herbacea*: Artvin: Arhavi, *M. Coşkun* (AEF 19877). Between Artvin and Ardanuç, *M. Koyuncu 10549*, *N. Tanker, M. Coşkun* (AEF18115). Manisa: Spil Mountain, *M. Koyuncu 3340* (AEF9587). Eskişehir: Sarıcakaya road, *N. Tanker & M. Koyuncu 8946* (AEF 17000). Ankara: Çubuk Dam road, *M. Coşkun* (AEF 19207). Çubuk Dam, *M. Coşkun* (AEF 18816). Çubuk Dam road, *N. Tanker & M. Güley* (AEF 28359). Çubuk Dam, *M. Kartal* (AEF 19484). Beynam Forest clearings, *M. Koyuncu & S. Başaran* (AEF 5480). Around Çubuk Dam, *M. Koyuncu* (AEF 3909). Çubuk Dam, *M. Kartal & M. Aseker* (AEF 22947). Ankara–Adana road, *N. Tanker* (AEF 3629). Kepekli Strait, *M. Koyuncu* (AEF 1895). Gazi Street, *N. Tanker* (AEF3637). İdris Mountain, Ahmetadil Village, *M. Koyuncu & M. Coşkun* (AEF 16385). Around Kurtboğazı Dam, *M. Koyuncu* (AEF 5159). Antalya: Manavgat, Kızıldağ Village, *T. Ekim & M. Koyuncu* (AEF10584). Akseki, Üzüm Stream, *M. Koyuncu* (AEF 15028). İçel: Between Mut and Gülnar, *M. Koyuncu 4880*, *M. Coşkun* (AEF 26050). Konya: Cihanbeyli, *M. Koyuncu & M. Coşkun* (AEF 10438). Mersin: Between Anamur and Ermenek, *M. Koyuncu & M. Coşkun* (AEF 5121). Adana: Osmaniye, Nurdağı, *M. Koyuncu* (AEF6075). — *Vinca soneri*: Erzincan: Kemaliye, *M. Koyuncu & O. Soner* (holotype AEF 16951, isotypes ANK, GAZI). Kemaliye, above Sarıkonaklar Village, *M. Koyuncu & O. Soner* (AEF 16143). Kemaliye, slopes above the Sarıkonaklar Village, *M. Abu Aseker* (AEF 22948). Kemaliye, above Sarıkonaklar Village, *M. Koyuncu* (AEF 15166). Kemaliye, Aşağı Umutlu Village, *M. Tanker & M. Coşkun* (AEF 15165). Kemaliye, Eğin, *M. Tanker, M. Koyuncu & O. Soner* (AEF 10787). Kemaliye, Aşağı Umutlu Village, *M. Tanker & M. Coşkun* (AEF 15166). Sivas: Zara–Divriği road, *M. Koyuncu* (AEF 25262). Between Ulaş and Zara, *M. Koyuncu* (AEF 25289). Between Zara and Divriği, *M. Koyuncu, N. Arslan, A. Gümüşçü & İ. Parmaksız* (AEF 25632). — *Vinca minor*: Ankara: Ankara University, around Faculty of Science, *M. Kartal & M. Aseker* (AEF 22950). Artvin: Between Borçka and Karşıköy, Çoruh Valey, around Taşlıtarla, 700 m, 1983, *A. Güner, B. Yıldız & M. Bilgin*. — *Vinca major* var. *hirsuta:* Ankara: Ankara University, around Faculty of Science, *M. Aseker* (AEF22949), *M. Kartal* (AEF 23802). Giresun: Around Tamdere, *M. Kartal* (AEF 16690). Rize: Fındıklı, *M. Kartal* (AEF 16691). Çamlıhemşin, *M. Kartal* (AEF 17549). Çamlıhemşin, Aşağı, *M. Kartal & S. Kurucu* (AEF 16652). Çamlıhemşin, *M. Kartal* (AEF 17549). Ardeşen, around Tunca Village, *A. Güner 3223* (AEF 26600). Artvin: Arhavi, *N. & M. Tanker, S. Kurucu*

(AEF 17550). — *Vinca major* var. *major*: Antakya: Harbiye, *M. Coşkun, B. Şener & F. Ilısulu* (AEF 6383). Kırıkhan, Delibekirli, *M. Koyuncu* (AEF 6067).

Acknowledgements

We thank Dr. Sabina Knees for help in improving the manuscript. This study is financially supported by the Edinburgh Botanic Garden (SIBBALD) Trust and the Scientific and Technological Research Council of Turkey (TÜBİTAK).

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