

prominent scattered black glandular dots throughout; internodes 20–40 mm, exceeding leaves. *Leaves* sessile, spreading, sometimes glaucous; lamina (main stem) 10–30 × 1–5 mm, linear, apex retuse, margin revolute, base cuneate, 1-veined or occasionally with 1–2 pairs of lateral branches, with laminar glands pale, small, ± numerous and often black, and a larger subapical black gland beneath, marginal glands dense; lamina (axillary and sterile shoots) smaller, otherwise similar. *Inflorescence* ∞-flowered, from 6–11 nodes, narrowly to broadly cylindric, rather lax, 5–18(–23) mm long, with lateral cymules 1–7-flowered, without flowering branches below; bracts and bracteoles reduced foliage leaves, retuse to rounded. *Flowers* c. 15–25 mm in diam., with petals deflexed after flowering; buds globose. *Sepals* subequal or equal, c. ¼ united, not imbricate, 1–3 × 0.7–1.5 mm, oblong, obtuse to rounded; veins 3; margin distally with regular small, sessile or subsessile, globose black glands or rarely subentire, eglandular; laminar glands 2, pale or usually black, linear. *Petals* bright? yellow, not red-tinged, 7–10 × 4–6 mm, 3–7 × sepals, obovate, long-unguiculate, rounded, entire or rarely with 1–5 sessile marginal black glands; laminar glands pale or usually some or nearly all black, few to numerous, striiform to punctiform. *Stamens* c. 60, longest c. 7–9 mm; filaments not red-tinged. *Ovary* 2.5–3 × 1.5–2 mm, ovoid-acuminate; styles 3–4 mm, 1.2–1.3 × ovary. *Capsule* 5–7 × 3–4.5 mm, ovoid-pyramidal, scarcely rostrate. *Seeds* reddish brown, c. 2 mm long. 2n = ?

Steppe, hillsides and field margins on calcareous soil; 300–1150 m.

Northern Syria., south & east Turkey, north Iraq.

SYRIA. Aleppo [Halab], 1834 (fl), *Montbret* 1853 (BMp, FI, K, W); in deserto fl.[uminis] Chabur, 1867 (fl), *Haussknecht* 1167 pp (BM, G, JE, K).

TURKEY. Maraş: Marasch, August 1865 (fr), *Haussknecht s.n.* (G). Gaziantep: Aintab, June 1907 (fl), *Haradjian* 1280 (E, K, W); inter Aintab et Nisib, 20 May 1865 (fl), *Haussknecht* 660 pp. (G, JE). Urfa: Bireçik to Urfa, 29 km, 550 m, 20 May 1956, *Huber-Morath* 13810 (BASBG); Orfa, 360m, 9 May 1865 (fl), *Haussknecht* 660 pp. (BM, JE, K, W). Mardin: 12 km from Gerçüş to Hasankeyf, 700–800 m, 14 May 1966 (fl), *Davis* 43051 (E, K); Mardin, 1100 m, 21 May 1957 (fl), *Davis & Hedge* D.28357 (BM, E, K). Diyarbakir: Diyarbakir, 23 June 1954 (e.fr), *Davis* 22152 (BM, E, K, W). Elazig: 15 km S. von Maden, 14 May 1966 (fl), *Eiselt s.n.* (W). Siirt: c. 20 km from Beşiri to Kurtalan, 650 m, 14 May 1966 (fl), *Davis* 42989 (E, K).

IRAQ. Jabal Sinjar: Jebel Sinjar, N. of the town, 1100 m, 26 May 1948 (fl), *Gillett in N.H.I.* 11111 (K). Upper Jazira: between Balad Sinjar and Tell Afar, Meer Khasim, 30 May 1934 (fl), *Field & Lazar* 556 (K). Amadiya: Mosul liwa, near Aqra, Serderian, 7 May 1948 (fl), *Mermarian in N.H. I.* 10796 (K). Rowanduz: Jebel Baradost, near Diana Rowandiz, 28–29 June 1934 (fr), *Field & Lazar* 877 (BASBG).

The retuse leaf apex, nearly always with an abaxial black gland, makes *H. retusum* unmistakable. Like 14. *H. libanoticum*, it would seem to be a derivative of 13. *H. hedgei* but with a more eastern distribution.

16. ***Hypericum lydium*** Boiss., *Diagn. pl. orient.* I, 1: 57 (1843); Grossheim, *Fl. Kavk.* 3:71 (1932), *op. cit.*, 2nd ed. 6: 171 (1962); Gorschkova in Schischkin & Bobrov, *Fl. URSS* 15: 231 (1949); Kem.-Nath. in *Akad. Wiss. Grus. S.S.R.* 23: 29 (1963) [not seen]; Robson in *Notes Roy. Bot. Gard. Edinburgh* 27: 189 (1967), in Davis, *Fl. Turkey* 2: 374, t. 11 f. 14g, t. 13 f.18, map 22 (1967) *excl. syn. H. hyssopifolium* var. *lythrifolium* Boiss., in *Anzeig. Oesterr. Akad. Wiss., Math.-Nat. Kl.*, 104: 142 (1967), in K.H. Rechinger, *Fl. Iranica*, Guttiferae: 8 (1968), in Townsend & Guest, *Fl. Iraq* 4: 372 (1980), in *Notes Roy. Bot. Gard. Edinburgh* 43: 258 (1986); Greuter, Burdet & Long, *Med.-Checkl.* 3: 268 (1986); Ramos in *Lagascalia* 13: 179 (1985); Hagemann in *Flora* 183: 296, ff. 73–75 (1989); Sennikov in *Bot. Zhurn.* 78: 76 (1993). Types: Turkey, Denizli, Cadmus [Gökbel] supra Denisleh, June 1842 (fl), *Boissier s.n.* (G!-lectotype, selected here, Ep!); Manisa, Tmolus supra Philadelphia [Alaşehir], June 1842? (fl), *Boissier s.n.* (G!-syntype).

Fig. 10, Map 7.

Hypericum sebasteum Boiss. & Noé in Boiss. *Diagn. pl. orient.* II, 1: 107 (1853). Type: Turkey, Sivas, prope Sivas, June 1852 (fl), Noé 1078 (G!-holotype).

Hypericum hyssopifolium var. *lydium* (Boiss.) Boiss., *Fl. orient.* 1: 799 (1867); Lipsky, *Fl. Cauc.*: 258 (1899); Post, *Fl. Syria*. 2nd ed. 1: 231 (1932).

Hypericum adenocladum Boiss., *Fl. orient.* 1: 802 (1867); Post, *Fl. Syria* 2nd ed. 1: 232 (1932); Stefanoff in *God. Agr.-les. Fak. Uiv. Sofiya* 11: 179 (1933), 12: 89 (1934), in *Pflanzenareale* 4(1): Karte 9a (1933); K.H. Rechinger in *Arkiv f. Bot.* 5: 290 (1960). Type: Turkey, Hatay, "In monte Akmadagh Syriae borealis", 1500 m, May–June 1862 (fl), Kotschy 375 (G!-holotype; W!-isotype, BM!, E! photos!).

Hypericum ponticum Lipsky in *Zap. Kiev Obsch. Est.* 12: 352 (1892), in *Acta Hort. Petrop.* 13: 282 (1894), *Fl. Cauc.*: 258 (1899); Gorschkova in Schischkin & Bobrov, *Fl. URSS.* 15: 228 (1949); Grossheim, *Fl. Kavk.*, 2nd ed. 6: 258, Karta 187 (1962); Duborik in *Ukrayins'k Bot. Zhurn.* 38(5): 10 (1981). Type: Russia, Ciscaucasia, Novorossiisk, 10 June 1891 (fl), Lipsky s.n. (LE-holotype).

Hypericum elegans Lipsky in *Acta Hort. Petrop.* 13: 282 (1894), non Stephan ex Willd. (1802).

Hypericum helianthemoides var. *nanum* Keller & Post in *Bull. Herb. Boissier* 3: 155 (1895). Type: Turkey, Gaiur-Dagh (Amani), 1500 m, August & September 1892, Post & Autran 307 (G-holotype).

Hypericum hyssopifolium subsp. *ponticum* (Lipsky) Woron. in Kuzn., Busch & Fomin, *Fl. Cauc. Crit.* III 9: 29 (1906).

Hypericum hyssopifolium subsp. *chrysothyrsum* Woron. in Kuzn., Busch & Fomin, *Fl. Cauc. Crit.* III 9: 30 (1906). Types: Russia, Ciscaucasia, Krasnodar, Novorossiisk, 9 June 1891, Lipsky s.n. (LE!-lectotype, Fedorov 1963); other syntypes from Ciscaucasia, Novorossiisk (10 June 1891, Lipsky; 10 June 1896, Desulavy), Anapa (13 June 1891, Lipsky) and Krym (Koktebelya, 17 June 1904, Junge and Feodosiya, 30 June 1899, Taliv), all LE?

Hypericum hyssopifolium subsp. *chrysothyrsum* forma *vegetum* Woron. in Kuzn., Busch & Fomin, *Fl. Cauc. Crit.* III 9: 31 (1906). Type: Ukraine: Krym, Olen'ya gora, June 1896 (fl & fr), Thedos. (LE?-holotype).

Hypericum hyssopifolium subsp. *lydium* (Boiss.) Woron. in Kuzn., Busch & Fomin, *Fl. Cauc. Crit.* III 9: 31 (1906).

Hypericum thethrobicum Kem.-Nath. in Ketskhoveri, *Fl. Gruzii* 6: 233, t. 266 (1950), nom. invalid. descr. georg.

Hypericum chrysothyrsum (Woron.) Grossh., *Fl. Kavk.* 3: 72 (1932); Gorschkova in Schischkin & Bobrov, *Fl. URSS.* 15: 232 (1949); Tsurina in Vulf, *Fl. Kryma* 2(3): 106 (1953).

Hypericum hyssopifolium sensu Takht., *Fl. Armenii* 5: 16 (1966) pro parte quoad syn. *H. lydium* et *H. hyssopifolium* var. *lydium*; Sennikov in *Bot. Zhurn.* 78: 75 (1993) pro parte excl. *typum*.

Icon: Kem.-Nath. in Ketskhoveri, *Fl. Gruzii* 6: t. 266 (1950) (as *H. thethrobicum* Kem.-Nath.).

Perennial herb, 0.1–0.75 m tall, glabrous sometimes except leaves, erect to decumbent from sometimes branching taproot, not rooting, branching at base and sometimes up to inflorescence, with sterile shoots decumbent. *Stems* rarely glaucous, with $\pm$ numerous pale to amber or reddish, sometimes very prominent glands towards base or throughout; internodes 15–40 mm, usually exceeding leaves. *Leaves* sessile to very shortly pseudopetiolate, ascending to spreading, sometimes glaucous; lamina (main stem) 9–35 $\times$ 0.7–4(6) mm, linear, apex rounded or rarely obtuse, margin plane or $\pm$ revolute, base cuneate to rounded, 1-veined or with up to 4 pairs of lateral branches, with laminar glands pale, numerous, small, marginal glands dense; lamina (axillary and sterile shoots) smaller narrower, otherwise similar. *Inflorescence* 10– ∞ -flowered, from 5–12 nodes, cylindric to subspicate or narrowly pyramidal, dense or lax, 50–250(–340) mm long, with lateral cymules 1–4(–8)-flowered, occasionally with one pair of flowering branches below; bracts and bracteoles linear, entire or rarely irregularly black-glandular-ciliate. *Flowers* 10–22 mm in diam., with petals spreading to ascending after flowering; buds ellipsoid, acute or rarely broadly ellipsoid and rounded. *Sepals* subequal or equal, $\frac{1}{4}$ – $\frac{1}{2}$ united, not imbricate, 2–4 $\times$ 0.5–2 mm, lanceolate or or rarely ovate to narrowly oblong or linear, acute to subacute or rarely obtuse; veins 3–5; margin wholly or distally with sessile globose to ellipsoid or depressed-globose black glands or more often black-glandular-denticulate to -ciliate; laminar glands pale, linear. *Petals* bright golden yellow, sometimes red-tinged or -veined, 6–12 $\times$ 5–6 mm, 3 $\times$ sepals, narrowly to broadly obovate, unguiculate, rounded, distally black-glandular-ciliate; laminar glands pale, $\pm$ numerous, punctiform to striiform. *Stamens* c. 30–40, longest c. 5–7 mm; filaments rarely red-tinged. *Ovary* 2–3 $\times$ 1–1.5 mm, ovoid, $\pm$ rostrate; styles 3–4.5 mm, 1.5 $\times$ ovary. *Capsule* 6–10 $\times$ 3.5–6 mm, ovoid and acuminate to subglobose and rostrate. *Seeds* pale to reddish brown, c. 1.5 mm long. $2n = 24$ (Reynaud, 1975, 1981); $n = 14$ (Reynaud, 1981).

Rocky slopes and *Pinus* woodland, 400–3600 m.

Lebanon, western Syria, Asiatic Turkey, northern Iraq, western Iran, Azerbaijan, Armenia, Georgia, Russia (Ciscaucasia), Ukraine (Crimea).

LEBANON. Coast to Jebel el Liban and Jebel esh Sheik (Hermon) (Mouterde, 1970).

SYRIA. Mountain E. of Duma, 4 July 1865 (fl), *Post s.n.* (E). Jebel esh Sharqi (Antilebanon) and Jebel el Ansariye (Mouterde, 1970).

TURKEY. Bolu: Abant-See, 1400 m, 1 July 1969 (fr), *Sorger 69-4-58* (BM, WU). Zonguldağ: Karabük – Egriova – Keltepe Bölge, 23 May 1970 (fl), *Bozakman & Fitz 706* (W). Amasya: Amasia, 400–500 m, 10 June 1889 (fl & fr), *Bornmüller 186* (BASBG, BM, E, JE, K, LE, W). Tokat: Tokat to Yıldızeli, N. side of Çamlıbel Dağ, 1500 m, 4 June 1965 (fl), *Coode & Jones 1984* (E, K). Gümüşane: c. 23 km N. of Askale towards Trabzon, 22 August 1972 (fr), *Uotila 19637* (H). Kars: near Kağızman, (Grossheim, 1962: Karta 187). İzmir: pentes des montagnes dominant Bounarbachı près de Smyrne, 24 June 1864 (fl), *Balansa 91* (BM, E, G, JE, K, LE). Kütahya: Gediz, 850 m, 3 July 1962 (fl), *Davis & Coode D.36617* (E, K). Ankara: Dikmen deresi, bei Ankara, May 1940 (fl), *Romieux in Huber-Morath 5976* (BASBG). Kayseri: Ali Dagh. Talas, 1530 m, 17 June 1934 (fl), *Balls 1384* (BM, E, K). Adana: Saimbeyli, 1100 m, 11 July 1952 *Davis, Dodds & Çetik D.19876* (BM, E, K). Erzurum: Polandöken Dağı, oberhalb Schilift-Talstation, 2200 m, 26 July 1978, *Sorger 78-113-77* (W). Bitlis: Pelli Dağ above Pelli, 2743 m, 7 July 1954 (fl), *Davis & Polunin D.22476* (BM, E, K, LE, W). Burdur: Dirmil – Tefenni, 3 km, 1200 m, 9 June 1938 (fl), *Huber-Morath 5263* (BASBG). Antalya: Side, ruins, 20 June 1971 (fl), *Ayanoğlu, Sezik & Çubukçu H16* (BM). Niğde: S. bank of river below Maden, 1534 m, 1 August 1969 (fl & fr), *Darrah 531a* (E). Hatay: ex Amano prope Beilan, supra Mesgedou, 840 m, 14 June 1862 (l. fl), *Kotschy 8* (BM, JE, K, LE, S, W). Adıyaman: Nemrut Dağ, 2200 m, 17 July 1978 (fr), *Sorger 78-60-15* (W). Hakkari: Hakkari to Yüksekova, 62 km, Nehil Çayı, 1750 m, 14 June 1966 (fl), *Davis 44917* (E, K).

IRAQ. Amadiyah: Zawitah Gorge, 840 m, 26 July 1933 (fr), *Guest in Rustam 3724* (K); Bekhair, 1000 m, 8 May 1974 (fl), *Rawi 3456* (K).

IRAN. Azarbaijan: Tabriz to Marand, c. 7 km, Mishu-Dagh mont., 1740–2070 m, NE. slope, 10 June 1996 (fl), *Azadi & Nikchehreh 75624* (BM, IRAN*).

AZERBAIJAN. Nakhchivan: numerous records (Grossheim, 1962: Karta 187).

ARMENIA. Yeranos (Grossheim, 1962).

GEORGIA. *Hypericum thetrobicum* Kem-Nath. is endemic to the Javakheti Plateau in SE. Georgia. From the illustration in *Fl. Gruzii* it appears to be within the range of variation of *H. lydium*.

RUSSIA. Krasnodar: jugum Markotch, c. 500 m, 19 June 1951 (fl & fr), *Kolakovsky 3689* (BM, E, H, K, LE, W).

UKRAINE. Krym: Kochtebel, in silv. Imaretsk, 17(30) June 1904 (fl & e. fr), *Golde s.n.* (BMp, Kp, LE, Wp); Novoi Svet, 20(7) June 1906 (fl), *Wankow s.n.* (LE).

The removal of 13. *H. hedgei* from *H. lydium* has made the latter more homogeneous but still quite variable. The ‘typical’ (basic) form has a stem with glands slightly protuberant, leaves partially revolute and a narrow, crowded, unbranched inflorescence. In plants from south and southwest Turkey where such narrow inflorescences continue, the variation is towards stems with swollen glands (*‘H. adenocladum’*); but another trend, apparent in plants from the drier south-east, is towards wholly revolute leaves and a laxer inflorescence, sometimes with a pair of branches, making it narrowly pyramidal.

The gap in distribution from Turkey and Armenia to Ciscaucasian Russia, apparently omitting Georgia, has resulted in the treatment of the Russian and Ukrainian population as one or two distinct species: *H. ponticum* Lipsky and *H. chrysothyrsum* Woron. Despite their being keyed out separately in local and national Floras, I can find no constant differences between them and the rest of *H. lydium* and have therefore treated the two populations as one variable species. The only Georgian population in this affinity is in the extreme south-east (Javakheti Plateau) and was described (invalidly) by Kemularia-Nathadze (1950) as a new species,

H. thethrobicum. From the accompanying figure, however, it seems to be no more than a form of the variable *H. lydium*

Reynaud's report (1981) of different somatic and mitotic chromosome numbers in *H. lydium* ($2n = 24$, $n = 14$) suggests cytological instability in this species, as has been found elsewhere in Sect. *Hirtella* (e.g. $2n = 24$, 28 in 19. *H. scabrum* q.v.), see the Introduction.

17. ***Hypericum thymbrifolium*** Boiss. & Noé in Boiss., *Diagn. pl. orient.* II, 1: 107 (1853) [*thymbraefolium*']; Boiss., *Fl. orient.* 1: 802 (1867); Stefanoff in *God. Agr.-les. Fak. Univ. Sofiya* 10: t. 5 f. 4 (1932), 11: 184 (1933), 12: 91 (1934), in *Pflanzenareale* 4(1): Karte 9b (1933); N. Robson in Davis, *Fl. Turkey* 2: 375, t. 11 f. 16 (1967), in *Anzeig. Oesterr. Akad. Wiss., Math.-Nat. Kl.* 104: 141 (1967), in *Notes Roy. Bot. Gard. Edinburgh* 43: 258 (1986); Greuter, Burdet & Long, *Med-Checkl.* 3: 273 (1986). Type: Turkey, Sivas, "In subalpinis infra Harput et Siwas", June 1862 (fl), Noé 831 (G!-holotype).

Map 7.

Icones: none.

Perennial herb, 0.9–0.24 m tall, glabrous except leaves, erect to ascending from taproot, not rooting, branching at base, with sterile shoots erect to decumbent. *Stems* not glaucous, with $\pm$ numerous small amber glands often rather prominent; internodes 5–20 mm, usually exceeding leaves. *Leaves* very shortly pseudopetiolate, ascending to spreading, $\pm$ glaucous; lamina (main stem) 7–15 $\times$ 0.7–2.5 mm, linear, apex sharply acuminate to mucronate, margin revolute, base cuneate to rounded, subglabrous to papillose-puberulous above, 1-veined, with laminar glands pale, numerous, small, marginal glands pale, small, dense; lamina (sterile shoots) similar. *Inflorescence* c. 10– ∞ -flowered, from 6–9 nodes, rather broadly to narrowly cylindric, 50–80 mm long, with lateral cymules 1–5-flowered, without flowering branches below; bracts and bracteoles lanceolate to linear, lower entire, upper with sessile black marginal glands. *Flowers* 10–14 mm in diam., with petals becoming deflexed; buds ellipsoid, rounded. *Sepals* equal, $\frac{1}{4}$ – $\frac{1}{3}$ united, not imbricate, 2–3 $\times$ 0.8–1.2 mm, $\pm$ narrowly oblong to ovate-lanceolate or lanceolate, acute; veins 3–5, prominent; margin with regular, sessile globose black glands or black-glandular-denticulate; laminar glands pale, in 2–4 usually continuous lines. *Petals* soft yellow, not red-tinged, 5–7(–9) $\times$ 2.5–4 mm, 2.5–3 $\times$ sepals, oblanceolate, long-unguiculate, rounded, black-glandular-ciliate at least distally; laminar glands pale, punctiform. *Stamens* c. 35, longest c. 5–6 mm; filaments not red-tinged. *Ovary* 2–3 $\times$ 1 mm, ovoid, shortly rostrate; styles 3–4 mm, 1.3–1.5 $\times$ ovary. *Capsule* 3–4.5 $\times$ 2.5–3 mm, subglobose to globose, shortly rostrate. *Seeds* papillose (see Stefanoff, 1932: t. 5 f. 4).

Calcareous hills and steppe; 920–1500 m

East-central Turkey.

TURKEY. Maraş: Gürün, 1400 m, 28 May 1960 (fl), *Stainton & Henderson* 5217 (E, K). Sivas: N. of Gök Pınar, 1700 m, 26 June 1971 (fl & e. fr), *Sorger* 71-52-4 (BM, WU). Malatya: above Darende, 1500 m, 19 June 1954 (fl), *Davis* 21855 (BM, E, K, W).

Hypericum thymbrifolium is a reduced derivative of *H. lydium* with sharply acuminate to mucronate leaves, from drier habitats in central Anatolia.