Solidago virgaurea L.

Standardized Common Name: European Goldenrod

Other Common Names: Goldenrod, Solidago, Virgaurea, Woundwort

Family: Asteraceae (Compositae)

Parts in Commerce: Whole herb with flowers

Identification:

Stems

- To 0.5 cm in diameter
- Reddish and glossy or yellowish, white inside
- With numerous shallow longitudinal ridges
- Glabrous or bearing short hairs

Leaves

- Basal leaves broadly elliptical to obovate, oblanceolate or spatulate, to 10 cm long, long-petioled
- Cauline leaves usually 1.5–6 cm long and narrowly elliptical or lanceolate, the lowermost sometimes broadly lanceolate and up to 10(–15) cm long, progressively reduced in size on the upper stem
- Bases of upper leaves tapering to form a short petiole, or somewhat clasping in the smaller leaves
- Apices acute
- Margins entire or weakly serrate, sometimes only the larger leaves serrate, bearing tiny hairs or projections
- Upper surface dark green and smooth; lower surface weakly pubescent with short stiff hairs, giving a rough texture, or glabrous
- Venation inconspicuous except for midrib, pinnate, reticulated; several curving secondary veins originate from midrib
- Odor slightly aromatic
- Taste astringent

Flowering heads

- Heads borne on all sides of the flowering stem, not confined to the upper side
- Heads on individual peduncles at least 3 mm long, not sessile
- Rachis and peduncles often pubescent
- Heads 6–10 mm in diameter
- Involucre cylindrical to broadly campanulate, pale green, 4.5–8 mm long, of up to 5 rows of bracts (phyllaries), the innermost longest
- Most phyllaries 3–6 mm long, narrow, acute, with greenish midrib and paler dry margins, sometimes weakly pubescent, often ciliate
- Ray florets 6–12, 4–9 mm long, yellow; ligule narrow, spreading, widest at top, usually with (2–)3–5 minute, inconspicuous apical lobes
- Disk florets 10–30, tubular, yellow, hermaphroditic, to 8 mm long; corolla narrowly tubular, widening above, with 5 short lobes, the lobes usually spreading at maturity; anthers mostly yellow, protruding above corolla; ovary often short-pubescent
- Pappus on both ray and disk florets a ring of bristles, (3–)4–5 mm long, the bristles bearing minute single-celled hairs

Among the other species of goldenrod used medicinally, the most common are *S. canadensis* L. (Canadian Goldenrod, which hybridizes readily with *S. virgaurea*) and *S. gigantea* Aiton (Early Goldenrod, for which *S. serotina* Aiton is a synonym). Both of these North American species are naturalized in Europe and could be accidentally substituted for *S. virgaurea*. These species share a number of distinguishing features:

- Leaves cauline only, largest at mid-stem, often deciduous from lower stem; all leaves generally >4 cm long, mid-stem leaves may be up to 15 cm long
- Leaves with three main veins; two veins originate from basal part of midrib and run parallel to it for most of length of leaf; primary veins often prominent on underside of leaf
- Leaf margins shallowly but sharply serrate for most of length on all leaves
- Leaf pubescence mainly along veins beneath (sometimes glabrate or pubescent throughout lower surface)
- Inflorescence a panicle with spreading branches, all heads borne toward one side of the branch
- Heads smaller than those of *S. virgaurea*, with smaller involucres, florets and pappus and with <12 disk florets per head
- Tiny apical lobes of ray florets commonly only 2
- Lobes of disk corollas smaller, usually remaining more or less erect rather than spreading at maturity
- Pappus bristles <2.5 mm long
- Odor slightly more aromatic and taste less bitter

Characters that separate these two species include the following:

	S. canadensis	S. gigantea
Stem pubescence	Upper part of vegetative stem hairy	Vegetative part of stem glabrous; flowering part usually hairy
Involucre	2–3 mm high	2.5–5 mm high
Ray florets	2.0–2.5(–3.0) mm long, narrow, usually not much longer than phyllaries and disk florets	3.5–4(–6) mm long
Disk florets	2–7 per head, 2.3–2.8 mm long	6–12 per head, 3.2–3.5 mm long

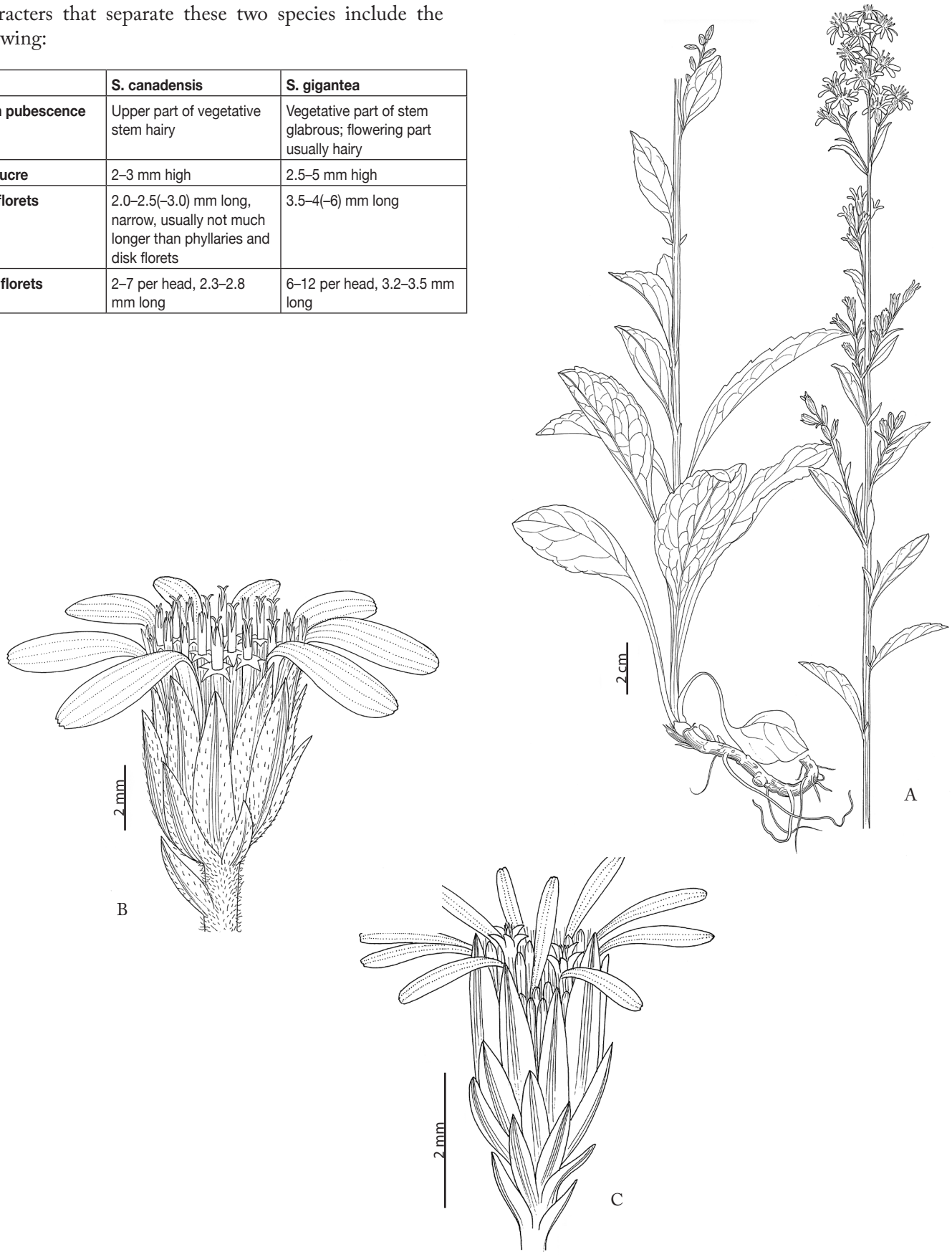

Figure 70: a–b, *Solidago virgaurea* habit and head; c, *S. gigantea* head.

Taxonomy: *Solidago* includes about 80 species, most of which are North American. There is only one native European species, *S. virgaurea*. Several similar North American species were formerly placed within *S. virgaurea*, which in recent treatments is restricted to plants of European origin.

Description: Perennial herb; stem to 1 m high, the vegetative portion unbranched. Leaves in a basal rosette and cauline; basal leaves petiolate, oblanceolate to obovate, 2–10(–14) cm long; cauline leaves alternate, decreasing in size above, narrowly lanceolate to elliptical, with tapering, short-petioled or clasping base; apex acute, margins usually serrate; lower surface usually pubescent. Inflorescence a thyrse of heads or a panicle of heads with ascending racemose branches. Heads pedunculate, with 6–12 ray florets and 10–30 disk florets; florets yellow. Involucre 4.5–8 mm long, cylindrical to campanulate, of multiple rows of overlapping bracts (phyllaries); phyllaries lanceolate, acute. Ray florets female, ligulate, 4–9 mm long; ligule narrowly oblanceolate, upper portion spreading, with (2–)3–5 minute apical lobes. Disk florets hermaphroditic, tubular, almost as long as ray florets; tube narrow, widening slightly above; lobes 5, short, spreading; anthers and style protrude above mouth of corolla tube. Fruit an achene, 3–4 mm long, pubescent, with numerous veins; pappus a ring of bristles, (3–)4–5 mm long.

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