

# Hypericaceae (St. Johnswort Family) Traits, Keys, & Comparison Charts

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## Hypericaceae Traits

- Perennial herbs (in our area).
- Stems are erect (lax in plants growing in flooded habitats) and **glabrous; terete (round), or square in cross-section**; internodes of terete stems with or without 2 low, vertical ridges along their length.
- **Leaves are cauline, opposite, and usually sessile**; blades are simple, linear to ovate, with mostly entire margins; **apices are obtuse to rounded**; stipules are absent.
- **Pellucid glands** with essential oils **appear as translucent dots** on the leaves (visible when leaves are held up to the light).
- **Dark red to blackish glands** (with essential oils like hypericin) **appear as slender streaks or tiny dots** along the leaf, sepal, or petal margins of some species.
- Flowers are solitary or 2–40 in terminal and often axillary simple to compound cymes, rarely in panicles.
- Flowers are **bisexual with regular (actinomorphic) symmetry**.
- Sepals 5, usually green.
- **Petals 5, yellow or orange, sometimes red-tinged beneath in *Hypericum*, pink or flesh-coloured in *Triadenum*.**
- **Stamens 5–95 (in NL species), arranged in 3–5 distinct or indistinct (loose) fascicles**; filaments usually fused only at the base (or fused to the middle in *Triadenum*); anthers are yellow or orange.
- **Nectar-producing staminodes absent in *Hypericum*, or present in *Triadenum*, then 3, orange, and alternating with the 3 fascicles of stamens.**
- The single pistil has a **superior ovary of 3 fused carpels with a single locule, and 3 styles and stigmas** (styles fused into a single beak in *H. ellipticum*).
- The fruit is a cylindrical to ovoid, reddish-brown **capsule with septicidal** (splitting open along the partial septa of the carpels) and **basipetal dehiscence** (splitting open from the top downward).

## Key to the Hypericaceae (St. Johnswort Family) of Newfoundland and Labrador

- 1a. Flowers with 5 pink or flesh-coloured petals; 9 stamens in 3 groups (fascicles) of 3, with filaments fused to about the middle; 3 yellow nectar-producing staminodes alternate with the 3 fascicles of stamens; the pistil has 3 carpels and 3 styles; leaves are ovate to cordate, with rounded to slightly cordate and somewhat clasping bases, often tinged with red; plants of shallow water, stream margins, peatland margins, and other freshwater habitats. .... ***Triadenum fraseri*** (Fraser's marsh St. Johnswort)
- 1b. Flowers with 5 yellow to orange petals, seldom tinged with red; stamens 5–95, usually in 3–5 groups (fascicles) of stamens, the filaments fused only at the base; nectar-producing staminodes are absent; pistil have 3 carpels, styles usually 3 (or fused into a single beak in *H. ellipticum*); leaves are linear to cordate; plants of a variety of native and disturbed habitats (*Hypericum*). ..... **2**
  - 2a. Plants usually <1–4 dm tall, rarely to 7.5 dm tall, with simple, unbranched stems, or few-branched stems; leaves linear to oblanceolate, 0.6–5.5 cm long × up to 5.5 mm wide, *or* leaves elliptic, oval, oblong, oblanceolate, or ovate, 0.5–3.5 cm long × 2–13 mm wide; flowers 3–15 mm across; petals lacking dark streaks or glands; stamens in 3–5 indistinct fascicles; styles 3, <1 mm long or united into a single beak 3–4 mm long; native species, usually found in or near wet habitats. .... **3**
  - 2b. Plants larger, to 12 dm tall, stems simple or usually very branched; leaves oval, elliptic, oblong, ovate, or cordate, 0.4–5 cm long × 2–25 mm wide; flowers 10–30 mm across; petals with dark streaks or tiny, dot-like glands within or outlining the petal margins; stamens in 3 distinct fascicles; styles 3, 3–6 mm long; introduced species, usually found along roadsides, in vacant fields, and other disturbed habitats. .... **5**
- 3a. Stems decumbent or prostrate, usually to 3.3 dm tall; leaves elliptic, oval, oblong, oblanceolate, or ovate, 0.5–1.5 cm long × 2–5 mm wide; flowers 3–5 mm across; stamens 5–16. .... ***Hypericum boreale*** (northern St. Johnswort)
- 3b. Stems erect, usually to 3 or 4 dm tall, rarely to 7.5 dm tall; leaves linear, elliptic, oblong, or oblanceolate, 0.6–5.5 cm long × 0.5–13 mm wide; flowers 5–15 mm across; stamens 12–95. .... **4**
  - 4a. Plants usually to 3 dm tall; leaves elliptic, oblong, or oblanceolate; 1.1–3.5 cm long × 3–13 mm wide, bases convex, rounded, to shallowly cordate; sepals elliptic, oblong, to lanceolate, 6–7 mm long × 2–3 mm wide; petals 6–8 mm long; stamens 70–95; styles united into a single erect beak. .... ***Hypericum ellipticum*** (pale St. Johnswort)
  - 4b. Plants usually to 4 dm tall, rarely taller in our area; leaves linear to narrowly oblanceolate, tapering gradually to the base; 0.6–5.5 cm long × 0.5–5.5 mm wide; sepals linear to lanceolate, 2.5–4.5 mm long × 0.8–1 mm wide; petals 2.5–4 mm long; stamens 12–25; styles 3, separate, less than 1 mm long. .... ***Hypericum canadense*** (Canada St. Johnswort)

- 5a. Stems to 7.5 dm tall, simple or sparingly branched; leaves oval to broadly ovate or cordate, 0.4–2.5 cm long by 0.4–2 cm wide, bases truncate to cordate; sepals broadly elliptic, ovate, or obovate and obtuse to rounded at the apex; petals and sepals without vertical black streaks, their margins entire and outlined with tiny, dark red to black spherical glands; stamens 30–45, anthers orange, with amber-coloured anther glands; an uncommon to rare introduction in seNfld. ... ***Hypericum pulchrum*** (slender St. Johnswort)
- 5b. Stems to 12 dm tall, many branched; leaves elliptic, oval, oblong, ovate, or cordate, 0.7–5 cm long × up to 2 cm wide, bases convex to rounded; sepals linear to ovate, obtuse or attenuate at the apex; petals and sepals with vertical black streaks, their margins entire, often with dark dot-like glands inside the margins of the petals; stamens 30–90, anthers yellow, with black anther glands; common introductions in insular Nfld. .... **6**
- 6a. Stems terete, internodes with 2 vertical lines or narrow wings on opposite sides of the stem; leaves elliptic or oblong, 0.7–3 cm long × 0.2–1.6 cm wide; blades with numerous pellucid glands; sepals linear to lanceolate, 2.5–7 mm long × 0.6–2 mm wide, acuminate to attenuate at the apex, margins entire, sometimes minutely dentate (denticulate) at the apex; petals 7–13 mm long; plants widespread throughout insular Nfld. .... ***Hypericum perforatum*** (common St. Johnswort)
- 6b. Stems four-angled, with low ridges on the 4 angles; leaves oval, oblong, or ovate, 1.5–5 cm long × 1–2 cm wide; blades with few or no pellucid glands; sepals oblong to ovate, 4–5 mm long × 2–3.5 mm wide, obtuse at the apex, margins entire to near the erose to minutely dentate (denticulate) apex; petals 10–15 mm long; plants of western NL (known from Gallants, Pinch Gut, Corner Brook, to Pasadena, but likely found elsewhere in wNfld.). ....  
..... ***Hypericum maculatum*** subsp. ***obtusiusculum*** (four-angled St. Johnswort)

[**Note:** *Hypericum ×dissimulatum*, a rare hybrid between *H. canadense* and *H. boreale* has traits intermediate between the 2 parents and may key out to either parent species (couplets 3–4) in the key above.]

<b>Hypericaceae Comparison Chart 1: Genera</b>		
<b>Genera:</b>	<i><b>Hypericum</b></i>	<i><b>Triadenum</b></i>
	St. Johnswort	marsh St. Johnswort
<b>Height</b>	0.3–12 dm tall, decumbent to erect; rhizomatous	1.5–7.5 dm tall, erect; rhizomatous
<b>Plant</b>	usually perennial, glabrous herbs; stems terete (circular) or 4-angled in cross-section (x.s.)	perennial, glabrous herbs; stems terete (circular) in cross-section (x.s.)
<b>Leaves</b>	opposite; sessile or nearly so; blade shapes range from linear to ovate, 0.4–5.5 cm long × up to 2 cm wide; apex obtuse to rounded; bases slightly tapering to cordate and ± clasping; margins entire; pellucid dots and black glands usually present	opposite; sessile; blades are oblong to broadly ovate, 1.5–5 cm long × 1–4 cm wide; apex usually rounded or retuse; base rounded to shallowly cordate; pellucid dots present throughout the blade; black glands are absent
<b>Flowers</b>	<b>0.3–3 cm across</b> ; solitary or in terminal and axillary cymes of 2–many flowers; <b>flowers remain open for more than 1 day</b> and do not close overnight	<b>0.8–1 cm across</b> ; solitary or 2–3 flowers in small terminal and axillary cymes; <b>flowers open for a single day</b> ; opening in late afternoon and closing over night
<b>Sepals</b>	5, green, lanceolate to obovate; margins mostly entire, or bordered with tiny, dark, spherical glands	5, green, oblong to elliptic-oblong, 2.5–5 × 1–1.5 mm, apex usually obtuse to rounded, rarely acute; margins entire
<b>Petals</b>	5, <b>yellow to orange</b> , elliptic to oblanceolate or obovate, 1.7–15 mm long	5, <b>pink or flesh-coloured, oblong to oblanceolate, 5–8 mm long</b>
<b>Stamens</b>	5–95, in 3–5 fascicles, fascicles distinct or indistinct (loose); anthers yellow to orange, <b>sometimes with amber or black gland on the connective</b> (at the tip of the anther); nectar-producing staminodes absent; pollination is by insects, anthers not adhering to the receptive stigmas	<b>9, in 3 fascicles of 3 stamens; filaments 3 mm long, fused (connate) for about half their length</b> ; anthers yellow; <b>3 orange, nectar-producing staminodes alternate with the stamen fascicles</b> ; flowers open to pollination by insects, but close and self-pollinate over night, the anthers adhering to the receptive stigmas
<b>Pistil</b>	ovary superior, of 3 fused carpels; styles 3, <b>distinct or fused into a slender beak</b>	ovary superior, of 3 fused carpels; styles 3, distinct, 0.5–1.5 mm long
<b>Capsule</b>	cylindric to globose, usually ovoid; 4–10 mm long × 1.5–7 mm wide; deep red to reddish-brown	ovoid, 7.5–9 mm long × 3.5–4.5 mm wide; reddish-brown
<b>Habitat</b>	moist to wet habitats (native species) or disturbed ground and roadsides (introduced species)	shorelines, marshes, or wet fens

<b>Hypericaceae Comparison Chart 2: Native <i>Hypericum</i> species</b>			
<b>Species:</b>	<b><i>Hypericum boreale</i></b>	<b><i>Hypericum canadense</i></b>	<b><i>Hypericum ellipticum</i></b>
	northern St. Johnswort	Canada St. Johnswort	pale St. Johnswort
<b>Height</b>	0.9–3.3 dm tall	0.3–7.5 dm tall	1.1–5 dm tall
<b>Plant</b>	perennial; stems decumbent or prostrate at the base, often with 2–6 ascending branches; internodes 4-angled	usually perennial; stems erect, usually with ascending branches at upper nodes; internodes 4-angled	perennial; stem erect, usually simple and unbranched; internodes somewhat 4-angled
<b>Leaves</b>	sessile, opposite; blades elliptic, oval, oblong, oblanceolate, or ovate, 0.5–1.5 cm long × 2–5 mm wide; apex obtuse to rounded, base convex to rounded; margins entire; primary veins 3–5	± sessile, opposite; blades linear to narrowly oblanceolate, 0.6–5.5 cm long × 0.5–5.5 mm wide; apex obtuse to rounded, gradually tapering at the base; margins entire; primary veins 1–3	sessile, opposite; blades elliptic, oblong, or oblanceolate, 1.1–3.5 cm long × 3–13 mm wide; apex obtuse to rounded, base convex, rounded to shallowly cordate; margins entire; primary veins 1
<b>Flowers</b>	3–5 mm across; solitary or 2–13-flowers in terminal or axillary cymes; bracts leafy, elliptic to ovate	5–10 mm across; solitary or 2–35 flowers in terminal and axillary cymes; bracts narrowly lanceolate	12–15 mm across; solitary or 3–15 flowers in terminal cymes; bracts usually absent
<b>Sepals</b>	5, lanceolate to oblong, 2–2.5 mm long × 0.8–1 mm wide; apex obtuse to acute; margins ± entire	5, linear to lanceolate, 2.5–4.5 mm long × 0.8–1 mm wide; apex acuminate; margins ± entire	5, elliptic, oblong, to oblanceolate, 6–7 mm long × 2–3 mm wide; apex acute; margins entire
<b>Petals</b>	5, yellow-orange, oblong, 1.7–3.5 mm long	5, yellow to yellow-orange, oblong to oblanceolate, 2.5–4 mm long	5, yellow, lanceolate, oblong, to oblanceolate, 6–8 mm long
<b>Stamens</b>	stamens 5–16, in 3–5 loose fascicles	stamens 12–25, in 3–5 loose fascicles	stamens persistent, 70–95, in 3–5 very loose fascicles
<b>Pistil</b>	ovary superior, of 3 fused carpels; styles 3, separate, 0.5 mm long	ovary superior, of 3 fused carpels; styles 3, separate, 0.5–0.8 mm long	ovary superior, of 3 fused carpels; styles 3, united into a slender beak, 3-4 mm long
<b>Capsule</b>	cylindric to ellipsoid, 4–5 mm long × 2–2.5 mm wide	ovoid, 4–6 mm long × 1.5–3 mm wide	ovoid to globose, 4–7 mm long (incl. the beak) × 3.5–5 mm wide

<b>Hypericaceae Comparison Chart 3: Introduced <i>Hypericum</i> species</b>			
<b>Species:</b>	<b><i>Hypericum maculatum</i> subsp. <i>obtusiusculum</i></b>	<b><i>Hypericum perforatum</i></b>	<b><i>Hypericum pulchrum</i></b>
	four-angled St. Johnswort	common St. Johnswort	slender St. Johnswort
<b>Height</b>	1.5–10 dm tall	2–12 dm tall	2–7.5 dm tall
<b>Plants</b>	perennial, erect, glabrous, in dense, compact clumps; <b>internodes 4-angled in cross-section, with low ridges on the angles</b>	perennial, erect, stems glabrous; growing in loose clusters; <b>internodes terete (circular) in cross-section, with 2 raised vertical lines</b>	perennial, erect, stems glabrous and <b>glaucous</b> , usually simple; internodes terete in cross-section, <b>without lines or ridges</b>
<b>Leaves</b>	sessile; blades <b>oval, oblong, or ovate, 1.5–5 cm long × 1–2 cm wide</b> , apex rounded, base convex to rounded, margins entire, with black dots; <b>pellucid dots are sparse or absent in the blade</b>	sessile or nearly so; blades <b>elliptic or oblong, 0.7–3 cm long × 0.2–1.6 cm wide</b> , apex obtuse to rounded, base convex to rounded, margins entire, with black dots; pellucid dots present throughout the blade	sessile; blades oval, oblong, to usually <b>broadly ovate, or cordate, 0.4–2.5 cm long, 0.4–2 cm wide</b> , apex obtuse to rounded, <b>base truncate to cordate, ± clasping</b> ; pellucid dots present in the blade
<b>Flowers</b>	2.5–3 cm across; solitary, or 2–40 flowers in simple to compound cymes	1.2–3 cm across; solitary, or 2–15 flowers in simple to compound cymes	<b>about 1–2 cm across</b> ; solitary, or 2–25 flowers in cymes or panicles
<b>Sepals</b>	5, green, <b>oblong to ovate, 4–5 mm long × 2–3.5 mm wide</b> ; apex obtuse, margins entire to near the erose to minutely dentate apex	5, green, <b>linear to lanceolate, 2.5–7 mm long × 0.6–2 mm wide</b> ; apex acuminate to attenuate, entire to minutely dentate	5, green, <b>broadly elliptic, ovate, or obovate, 2–4.5 mm long × 1–2.5 mm wide</b> ; apex obtuse to rounded; <b>with tiny, dark glands outside the entire margins</b>
<b>Petals</b>	5, yellow, lanceolate, oblong, to oblanceolate, 10–15 mm long; <b>with dark streaks and dots in the petals, most visible in buds</b>	5, yellow, elliptic to oblanceolate, 7–13 mm long; <b>with black glands in the margin</b> , but few dark streaks in the petals	5, yellow, <b>tinged with red in bud</b> , elliptic to obovate, 6.5–10 mm long; dark streaks absent, <b>with tiny, dark glands outside the margins</b>
<b>Stamens</b>	30–70, in 3 fascicles; anthers yellow, with a black anther gland at the tip of each anther	40–90, in 3 fascicles; anthers yellow, with a black anther gland at the tip	~ 30–45, in 3 fascicles; <b>anthers orange, with an amber-coloured anther gland</b> at the tip
<b>Capsule</b>	ovoid, 7–9 mm long × 5–7 mm wide; styles 3, spreading, 3–4 mm long	ovoid, 6–10 mm long × 3.5–5 mm wide; styles 3, spreading, 4–6 mm long	ovoid, 5–7 mm long × 3.3–4.2 mm wide; styles 3, spreading; 3.5–5.5 mm long

## References

- BREITWIESER I., P.J. BROWNSEY, W.A. NELSON, and A.D. WILTON, eds. 2010. *Hypericum pulchrum* L., in: *Flora of New Zealand Online*. URL: [www.nzflora.info](http://www.nzflora.info), accessed Aug 3, 2020.
- CROCKETT, S.L., and N.K. B. ROBSON. 2011. Taxonomy and Chemotaxonomy of the genus *Hypericum*. *Med. Aromat. Plant Sci. Biotechnol.* 5(1): 1-26.
- FERNALD, M.L. 1970. *Gray's Manual of Botany*. 8<sup>th</sup> (Centennial) edition, corrected printing of the 1950 edition. D. Van Nostrand Co., New York. 1632 pp.
- GILLETT, J.M. and N.K.B. ROBSON. 1981. The St. John's-worts of Canada (Guttiferae). *Publ. Bot. (Ottawa)* 11: 1-40.
- GLEASON, H.A. 1947. Notes on some American plants: *Triadenum*. *Phytologia* 2: 288-291.
- GLEASON, H.A., and A. CRONQUIST. 1991. *Manual of Vascular Plants of Northeastern United States and Adjacent Canada*. 2<sup>nd</sup> ed. The New York Botanical Garden, New York, NY. 993 pp.
- ROBSON, N.K.B. 1977. Studies in the genus *Hypericum* L. (Guttiferae). I. Infrageneric classification. *Bull. Br. Mus. Nat. Hist. (Bot.)* 5(6): 291-355.
- ROBSON, N.K.B. 1981. Studies in the genus *Hypericum* L. (Guttiferae). 2. Characters of the genus. *Bull. Br. Mus. Nat. Hist. (Bot.)* 8(2): 55-226.
- ROBSON, N.K.B. 1990. Studies in the genus *Hypericum* L. (Guttiferae). 8. Sections 29. *Brathys* (part 2) and 30. *Trigynobrathys*. *Bull. Br. Mus. Nat. Hist. (Bot.)* 20(1): 1-151.
- Robson, N. K. B. 1994. Studies in the genus *Hypericum* L. (Guttiferae) 6. Sections 20. *Myriandra* to 28. *Elodes*. *Bull. Nat. Hist. Mus. London, Bot.* 26: 75-217.
- ROBSON, N.K.B. 1996. Studies in the genus *Hypericum* L. (Guttiferae). 6. Sections 20. *Myriandra* to 28. *Elodes*. *Bull. Br. Mus. Nat. Hist. (Bot.)* 26(2): 75-217.
- ROBSON, N.K.B. 2002. Studies in the genus *Hypericum* L. (Guttiferae). 4(2). Section 9. *Hypericum* sensu lato (part 2): subsection 1. *Hypericum* series 1. *Hypericum*. *Bull. Br. Mus. Nat. Hist. (Bot.)* 32(2): 61-123.
- ROBSON, N.K.B. 2006. Studies in the genus *Hypericum* L. (Clusiaceae). Section 9. *Hypericum* sensu lato (part 3): Subsection 1. *Hypericum* series 2. *Senanensia*, subsection 2. *Erecta* and section 9b. *Graveolentia*. *Systematics and Biodiversity* 4(1): 19-98.
- Robson, N.K.B. 2010. Studies in the genus *Hypericum* L. (Hypericaceae) 5(2). Sections 17. *Hirtella* to 19. *Coridium*. *Phytotaxa* 4: 127-258.

Robson, N.K.B. 2012. Studies in the genus *Hypericum* L. (Hypericaceae)  
9. Addenda, corrigenda, keys, lists and general discussion. *Phytotaxa* 72: 1-103.

ROBSON, N.K.B. 2015. *Hypericaceae*. Pp. 71–105, in: FLORA OF NORTH AMERICA EDITORIAL COMMITTEE (eds.). 2015. *Flora of North America north of Mexico. Vol. 6. Magnoliophyta: Cucurbitaceae to Droseraceae*. Oxford Univ. Press, NY. 468 pp.