

Canadian Food Inspection Agency

Seed Identification of Cultivated and Wild Vetches (Vicia spp.)

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The Vicia genus includes approximately 190 species, including the commercially important faba bean (Vicia faba L.) and various cultivated and wild vetches (Vicia L. spp.) 14. The Vicia genus belongs to the Fabaceae family, a tribe including other agriculturally important genera such as Cicer, Lens, Lathyrus, and Pisum 5,11. Cultivated vetches are used as forage and their ability to fix nitrogen makes them popular as cover crops 10, 12, 3, 5. Vicia sativa L. subsp. sativa is the most common of the cultivated vetches globally 14, with its ability to withstand drought and marginal lands making it an appealing forage crop during climate change 4. Although seeds of V. sativa subsp. sativa contain cyanogenic glycosides that are toxic to humans¹, there is renewed interest in developing a nontoxic form for use as a protein rich pulse crop⁴. Cultivated vetches, such as Vicia villosa Roth. and Vicia sativa sub. sativa retoxic form for use as a protein rich pulse crop⁴. Cultivated vetches, such as Vicia villosa Roth. and Vicia sativa sub. Sativa retoxic form for use as a protein rich pulse crop⁴. Cultivated vetches, such as Vicia sativa sub. Sativa retoxic form for use as a protein rich pulse crop⁴. Cultivated vetches, such as Vicia villosa Roth. and Vicia sativa sub. Sativa retoxic form for use as a protein rich pulse crop⁴. Cultivated vetches, such as Vicia villosa Roth. and Vicia sativa sub. Sativa retoxic form for use as a protein rich pulse crop⁴. Cultivated vetches, such as Vicia villosa Roth. and Vicia sativa sub. Sativ

This poster illustrates seed features useful for separating Vicia species listed on the AOSA Exam and the CFIA Minimum List, as well as some of the more common wild vetch species found in Canada and the CFIA Minimum List, as well as some of the more common wild vetch species to focus on when identifying vetch species are the following: hilum size, shape, and colour; lens position and prominence; the presence of tissue (funiculus) on hilum; and seed size, shape, and colour. The Vicia species in this poster's scope mostly have a smooth surface texture or are minutely pitted under high magnification. Another closely related genus, Lathyrus, sometimes have similar looking seeds and are known as peavine or vetchling ¹². There are over 180 Lathryus species with seeds with obvious textured surfaces, but some may be smooth and possibly confused with Vicia species.

Cultivated Vetches (Vicia spp.)

Vicia benghalensis L.

- **Common names:** purple vetch, Algerian vetch, vesce de Bengale
- **Synonyms:** *Vicia atropurpurea* Desf.
- Identification Tip: lens 1.2 mm from hilum ⁹; linear hilum is 2.5 to 3 mm long ¹⁰ and covered by persistent white funicular tissue, but may be absent ¹⁰; seed is oval, dull, black, and 4 – 5 mm in diameter⁸







Vicia pannonica Crantz

Common names: Hungarian vetch, vesce de Hongrie, vesce de Pannonie Identification Tip: lens located on opposite side of seed as hilum; hilum 2 mm long ¹⁰ and narrowly oblong; seed compressed and lenticular or cone-shaped; seed 4.0 to 4.5 mm long ¹⁰; brown with darker mottling, but some may be greenish grey with mottling ⁷. Beware of other *Vicia* species with lens on opposite side: *V. hybrida* L., *V. lutea* L., *V. melanops* Sm.





Vicia sativa L. subsp. sativa

• Common names: common vetch, vesce cultivée, cultivated vetch, tare • Identification Tip: lens is pronounced and near hilum end; hilum is 2.0 to 2.5 mm long ¹⁰, narrow, oblong or wedged-shaped; seeds are generally large in comparison to other Vicia species in poster's scope; seed colour ranges from yellow to brown with dark mottling; seed radicle is a longer triangular shape than V. villosa





Vicia villosa Roth

• **Common names:** hairy vetch, fodder vetch, vesce velue, woolly-pod vetch • Identification Tip: lens near hilum end; hilum is small compared to seed size, generally a similar colour to the seed coat, and is short oblong or wedge-shaped; depending on subspecies, may be spherical (rolls easily) or oval; seed size variable and may be similar to V. sativa subsp. sativa in size and shape; seed is generally dull, black or dark brown; seed radicle is a broad triangular shape compared to the longer radicle of V. sativa subsp. sativa





Images produced by National Seed Herbarium of the Canadian Food Inspection Agency

Agence canadienne d'inspection des aliments

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Vicia americana Muhl. ex Willd.

Common names: American vetch, buffalo-pea, vesce d'Amérique Identification Tip: lens 1.3 to 2.0 mm from hilum ⁹; hilum is 3.5 mm long ¹⁰, relatively wide and a lighter colour than seed coat, but may be same colour; seeds are reddish or dark brown, mottling is obscure if present ¹⁰; relatively small, and is spherical or conical; seed similar to Vicia cracca



Vicia cracca L.

Common names: tufted vetch, bird vetch, vesce jargeau Identification Tip: lens 1.0 mm from hilum ⁹; hilum is 2.5 to 3.0 mm long ¹⁰ and wide with a light, thin strip in its middle, seed is dull, dark brown, black or lighter colour and mottled; relatively small in size but it is variable and is oval, spherical, conical or oblong; seed similar to Vicia americana





Common names: tiny vetch, hairy tare, hairy vetch, vesce hérissée Identification Tip: lens is 0.6 to 1.0 mm from hilum⁹; hilum long, narrow and may be covered or partially covered with funicular tissue; seed is glossy, light brown or reddish brown colour, which may be due to age ⁹, that is almost solid or with darker mottling; relatively small and lenticular, oval shaped



Wild Vetches (*Vicia* spp.)





Vicia sativa L. subsp. nigra (L.) Ehrh.

- **Common names:** narrow-leaved vetch, black-pod vetch, vesce noire
- and spherical, oval or cylindrical

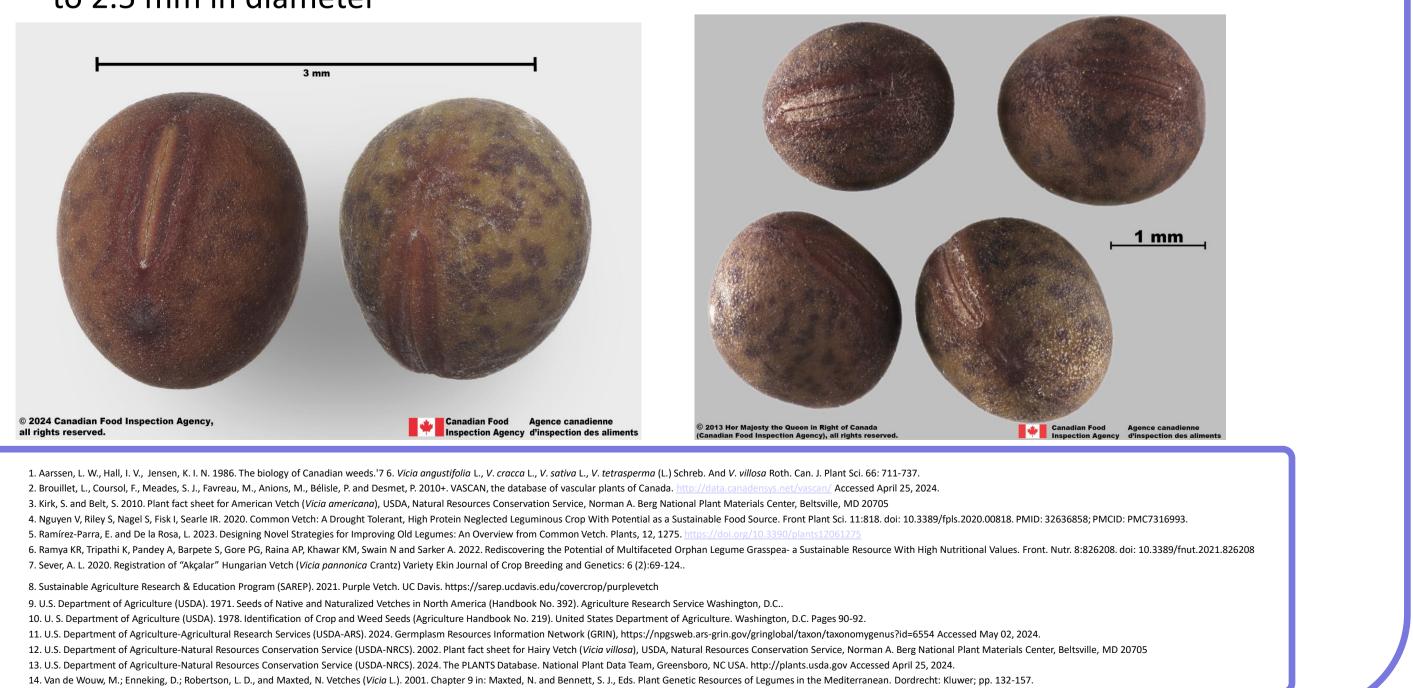


Vicia sepium L.

• **Common names:** hedge vetch, bush vetch, vesce des haies oval, spherical, or lenticular



• **Common names:** four-seeded vetch, lentil vetch, vesce à quatre graines to 2.5 mm in diameter ¹





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• Synonym: Vicia angustifolia L., Vicia sativa var. angustifolia (L.) Wahlenberg Identification Tip: lens more obvious on lighter coloured seeds and located near narrow end of hilum; hilum is wedge-shaped and lighter in the middle than the outside; seeds are brown with dark mottling but some a lighter colour, 3.0 mm in diameter ¹,



• Identification Tip: hilum is linear, thin and is the longest of the species in the poster's scope as it is half of the seed's circumference or greater, most seeds only have a tiny piece of the long funiculus remaining; seed greenish brown, light to dark brown with darker mottling or may be a solid colour; seed relatively small; seed is



Vicia tetrasperma (L.) Schreb.

• Identification Tip: lens is prominent and 0.4 mm from hilum⁹; hilum's outline is ridged, hilum is short at 1.25 mm ¹⁰, oblong shaped, and is lighter in its middle; seed spherical, lenticular or oval and is the smallest Vicia species in poster's scope at 1.5