Hardenbergia violacea

Scientific Name

***Hardenbergia violacea* (Schneev.) Stearn**

Synonyms

Glycine violacea Schneev., *Hardenbergia monophylla* (Vent.) Benth., *Kennedia monphylla* Vent.

Family

Fabaceae.

Common/English Names

Climbing Morning Glory, False Sarsaparilla, Happy Wanderer, Native Lilac, Purple Coral, Purple Coral Pea, Native Sarsaparilla, Native Woodrose, Purple Twining Pea, Sarsaparilla.

Vernacular Names

Australia: Waraburra (Kattang Aborigines)
United States: Lilac Vine, Mexican Lilac Vine

Origin/Distribution

The species is native to Australia, growing in areas from Queensland to Tasmania. It has been introduced to the United States where it is grown as landscape plants.

Agroecology

In Australia the species is found in many habitats, growing widespread along the coast and adjacent ranges in the eastern and southern states on the mainland. It grows in coastal heath and forest and inland in drier eucalypt forests. In Tasmania, it is deemed as endangered, as it is only known from two small natural populations, on private land.

The species is moderately frost tolerant down to 0 to −5 °C and moderately drought tolerant. It thrives in areas with 400–2,400 m mean annual rainfall in summer or winter, mean annual temperature range of 10–21 °C, and tolerates a summer maximum of 33 °C. It grows best in full sun but tolerates light shade in well-drained acidic (<pH 6.5) clay loam, loam, sandy loam or sandy clay loam soils. It is intolerant of salinity.

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Edible Plant Parts and Uses

The leaves are boiled and used to prepare a sweet and pleasant beverage (Cribb and Cribb 1976; Kunkel 1984; Facciola 1990). The roots were also reportedly used in a similar way. The purple flowers are also eaten (Haslam 2011).

Botany

A hardy, evergreen, climbing or prostrate, glabrous subshrub with slender, woody stem growing to 2 m long. Leaf simple, ovate-narrow-lanceolate 3–10 cm by 1–5 cm wide, glabrous, dark green above, grey green beneath, leathery, margin entire, venation distinctly reticulate, tip mucronate, base rounded to indented (Plates 1 and 2), petiole 0.5–3 cm long, stipels 1–2 mm long, filiform. Inflorescence axillary, racemose panicle with 20–30 violet or reddish flowers, each axillary unit of 3 flowers with a subtending bract. Calyx 3–4 mm long with two dorsal sepals fully and the rest joined ¾ length; corolla 8 mm long, with violet purple (or red) standard with 2 yellowish white spots at the base, lateral wings on long yellow claw, violet purple and keel also violate purple or red (Plates 1, 2 and 3); stamens 9 joined into a tube and 1 free, diadelphous; ovary 3–3.5 mm long. Pod flattened oblong, 35–50 mm long, glabrous, dark brown to black. Seeds 4–8, reinform, 2.5–3 mm, olive green to brown, strophiolate.

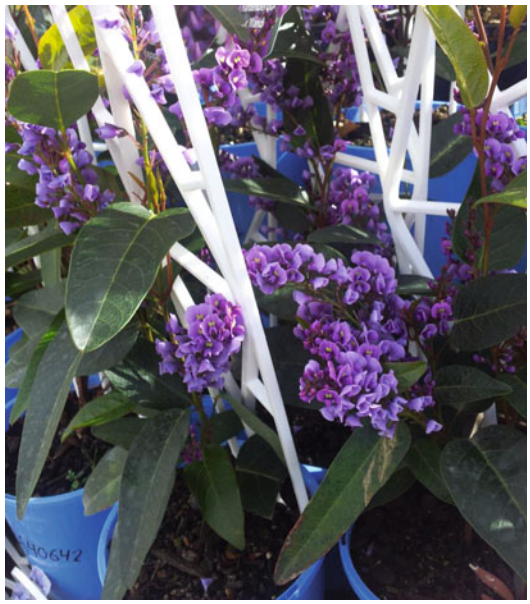

Plate 1 Flowers and foliage

Plate 2 Purple flowered variety

Plate 3 Red-flowered variety

Nutritive/Medicinal Properties

Percentage distribution in *H. violacea* pods and seeds of mineral nutrients respectively were as follows: Na, 57.5 %, 42.5 %; Fe, 56.2 %, 43.8 %; K, 50 %, 50 %; Ca, 49.7 %, 50.3 %; Mn, 46.9 %, 53.1 %; Cl, 37.7 %, 62.3 %; Zn, 39.7 %, 60.3 %; Cu, 37.6 %, 62.4 %; S, 28.9 %, 71.15; Mg, 26.1 %, 73.9 %; N, 10 %, 90 %; and P, 5.7 %, 94.3 % (Hocking and Kortt 1987).

Concentrations (per g dry weight) of minerals in the elaiosome, testa and embryo of the seed were reported, respectively, as dry matter, 2.6 mg, 32.5 mg, 20.6 mg; N, 31.55 mg, 2.14 mg, 86.90 mg; P, 0.72 mg, 0.74 mg, 4.36 mg; K, 5.91 mg, 8.84 mg, 16.15 mg; S, 1.14 mg, 0.91 mg, 4.27 mg; Ca, 0.84 mg, 2.53 mg, 1,61 mg; Mg, 0.50 mg, 1.41 mg, 2.08 mg; Cl, 0.50 mg, 0.38 mg, 0.46 mg; Na, 145.0 µg, 200 µg, 102 µg; Fe, 38.4 µg, 34 µg, 55.2 µg; Zn, 18.4 µg, 26.1 µg, 58.7 µg: Mn, 53.6 µg, 45.7 µg, 23 µg; and Cu, 2.76 µg, 2 µg, 18.85 µg. The fatty acid compositions of elaiosomes and mature seeds were, respectively: lauric, (12:0) 0.13 %, 0; myristic, (14:0) 0.46 %,): palmitic, (16:0) 21.93 %, 12.1 %; palmitoleic, (16:1) 2.55 %, 0; stearic, (18:0) 5.26 %, 5.1 %; oleic, (18:0) 60.62 %, 23.2 %; linoleic, (18:2) 7.54 % 55.9 %; g-linolenic, (18:3) and a-linoleic, (18:3) 1.22 %, 3.0 %; and elaidic acid, (20:0) 0.29 %, 0. The amino acid composition [nmol amino acid (per mg dry weight meal)] of elaiosomes and dehulled seeds were, respectively: lysine, 21, 28.8; histidine, 6.5,10.3; arginine, 37.7, 24.0; aspartic acid, 49.9,44.49; threonine, 15.3,21.9; serine, 18.4, 29.6, glutamic acid, 30.8, 74.0; proline, 18.8, 23; glycine, 33.1, 43.2; alanine, 23.1, 31.2; half-cystine, 3.8, 6.3;valine, 17.3, 22.4; methionine, 2.6, 5.0; isoleucine, 15.5, 15.5; leucine, 28.1, 34.1; tyrosine, 11.1, 13.1;phenylalanine, 15.9, 17.7; and canavanine 4.0, 47.

As seen from the above, the seeds accumulated about 50 % of the dry matter of a mature fruit; over 90 % of its N and P content; 50–75 % of its K, Ca, Mn, Cl, S, Zn, Cu and Mg, but less than 50 % of its Fe and Na (Hocking and Kortt 1987). Seeds contained higher levels of most nutrients than pods. The testa comprised 60 % of the dry matter content of a seed and contained the major proportion of its Ca, Mg, Cl, Na and Mn; the embryo contained most of the seed's contents of N, P, K, S, Zn and Cu. The elaiosomes had less than 5 % of the seed's dry matter and mineral nutrient content. The oil content of the elaiosome was 34 %, compared to 12 % for the embryo. Oleic acid made up over 60 % of the fatty acid content of elaiosome oil. Aspartic acid, arginine and glycine were the predominant amino acids in the elaiosome. The embryo contained 10 % of the non-protein antimetabolic amino acid, canavanine, the elaiosome only 1 %. The subunit protein compositions of the elaiosome and embryo were different. Earlier, Rivett et al. (1983) reported that *Hardenbergia violacea* had a chemical composition which may have the potential for human food. The fatty acid composition of the elaiosome was quite different from that of the dehulled seed (Rivett et al. 1983) in that the predominant fatty acid of the seed was linoleic acid versus oleic acid in the elaiosome.

Concentrations (per g dry weight) of minerals in the leaves at 94 days after flower anthesis were as follows: N, 27.95 mg; P, 0.87 mg; K, 12.10 mg; S, 1.64 mg; Ca, 9.40 mg; Mg, 1.93 mg; Na, 0.29 mg; Cl, 0.74 mg; Fe, 190 µg; Zn, 26.4 µg; Mn, 180.8 µg; and Cu, 7.8 µg (Hocking and Kortt 1987).

The plant has been reported to be used in bush medicine as a tonic drink (Cribb and Cribb 1976; Haslam 2011).

Other Uses

A grey-blue dye is obtained from the flowers (Cribb and Cribb 1982).

Comments

The plant is readily propagated from seeds.

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