

***Barleria prionitis* L.**  
ACANTHACEAE

porcupine flower

Synonyms: none



**General Description.**—Porcupine flower, also called espinosa amarilla, and picanier jaune, is a flowering, spiny invader that reaches 1.5 m in height and 2.5 cm in basal diameter. It has a tap and lateral root system. Plants commonly have a single stem but may have multiple stems or branches from near the ground. The stems and branches are stiff, round, and light tan or light gray. The shrub is armed with 5- to 20-mm long spines in the leaf axils. Leaves are elliptic to oblong, 3 to 10 cm long and 1.5 to 4 cm broad. The yellow, tubular flowers, 3 to 4 cm long and broad, are sessile in the leaf axils or in terminal branched spikes. The two-celled capsule is ovate-lanceolate and 1.3 to 2 cm long, with a sharp-pointed beak about 6 mm long. The seeds are 8 by 5 mm, flattened and covered with matted hairs (Howard 1989, Liogier 1997).

**Range.**—Porcupine flower is a native of Tropical East Africa and Asia (Burkill 1985). It is widely cultivated as an ornamental and has escaped in

many tropical countries including Hawaii (Neal 1965) and Puerto Rico (Liogier 1997).

**Ecology.**—Porcupine flower grows in a wide variety of well-drained soils derived from igneous, metamorphic (including ultramafics) and sedimentary (including limestone) rocks. In the Puerto Rican naturalized range, it grows in areas receiving from about 750 to 900 mm of mean annual precipitation (author's observation). Within the native range, it probably tolerates both higher and lower precipitation, but no data are available. Porcupine flower is found throughout the hotter parts of India and defoliates annually during the dry season (Parrotta 2001). The species is moderately intolerant of shade, growing in both full sunlight and under light forest canopies. Porcupine flower may grow as single plants or in large, tangled thickets. Dense stands eliminate most other ground vegetation. However, the species does not compete well in dense stands of tall grass. It is most often found on roadsides, bluffs and bars above streams, overgrazed range, disturbed areas, and farmsteads.

**Reproduction.**—In the deciduous tropical forest zone of central India, these shrubs flower from September to December and fruit from January to April (Parrotta 2001). The flowering and fruiting seasons are about the same in Puerto Rico. Sixty fruits collected in Puerto Rico averaged  $0.0998 \pm 0.0044$  g/fruit. Air-dried seeds separated from the same collection averaged  $0.0305 \pm 0.0005$  g/seed or 33,000 seeds/kg. Forty-four percent of the seeds sown on commercial potting mix germinated between 13 and 77 days following sowing. Natural regeneration generally occurs within 1 or 2 m of the parent plant in Puerto Rico, perhaps because animal vectors for seed dispersal are lacking. Seedlings can be abundant near fruiting plants.

**Growth and Management.**—Seedlings of porcupine flower grow slowly at first. However, established plants add up to 0.5 m per year to their height and nursery seedlings reach 0.6 m in 6 months. In Puerto Rico, these shrubs live about 4 years. Because it is spiny and generally ignored by cattle, the species is considered a weed in much of its range. Mowing, followed by spraying of the

sprouts with broadleaf herbicide, is a general control measure for low shrubs and would probably be effective against porcupine flower.

**Benefits.**—Porcupine flower furnishes cover for wildlife and protects the soil against erosion. It is widely planted as an ornamental and cultivated in Asia as a hedge plant (Burkill 1985). Whole-plant extracts of porcupine flower contain iridoid glycosides, barlerin, and verbascoside, which have shown potent activity against respiratory syncytial virus *in vitro* and may account for the plant's use in treating fever and several respiratory diseases in herbal medicine (Balick and others 1998). Extracts of the plant have also been shown to effectively suppress the fungi *Trichophyton mentagrophytes in vitro* (Panwar and others 1979). A mouthwash made from root tissue is used to relieve toothache and treat bleeding gums (Burkill 1985). The whole plant, leaves, and roots are used for a variety of purposes in traditional Indian medicine. For example, the leaves are used to promote healing of wounds and to relieve joint pains and toothache (Parrotta 2001). Because of its antiseptic properties, extracts of the plant are incorporated into herbal cosmetics and hair products to promote skin and scalp health (Prakruti 2002, Probiotics New Zealand 2002, Vaipani 2002).

## References

- Balick, M., P. Blanc, M. Morgan, J.L. Chen, R. Cooper, M.R. Kernan, W. Nanakorn, N. Parkinson, E.J. Rozhon, C.A. Stoddard, and Z.J. Yee. 1998. New iridoids from the medicinal plant *Barleria prionitis* with potent activity against respiratory syncytial virus. *Journal of Natural Products* 61(10): 1,295-1,297.
- Burkill, H.M. 1985. *The useful plants of West Tropical Africa*. Vol. 1. Royal Botanic Garden, Kew, UK. 960 p.
- Howard, R. A. 1989. *Flora of the Lesser Antilles, Leeward and Windward Islands*. Vol. 6. Arnold Arboretum, Harvard University, Jamaica Plain, MA. 658 p.
- Liogier, H. A. 1997. *Descriptive flora of Puerto Rico and adjacent islands*. Vol. 5. Editorial de la Universidad de Puerto Rico, San Juan, PR. 436 p.
- Neal, M.C. 1965. *In gardens of Hawaii*. Special Publication 50. Bernice P. Bishop Museum Press, Honolulu, HI. 924 p.
- Panwar, H.S., M.M. Nauriyal, and H.C. Joshi. 1979. *In vitro* screening of certain indigenous plants for their antimycotic activity. *Veterinary Research Bulletin* 2(2): 164-167.
- Parrotta, J.A. 2001. *Healing plants of Peninsular India*. CABI Publishing, Wellington, UK & New York. 917 p.
- Prakruti. 2002. Suddh Bhangra (maka) oil. <http://www.prakrutiherbals.com/hairoil.htm> 2 p.
- Probiotics New Zealand. 2002. Probiotics for life—improving your health and quality of life through good bacteria. [http://www.probiotics.co.nz/prdcts\\_efml.asp?ProductID=5](http://www.probiotics.co.nz/prdcts_efml.asp?ProductID=5). 3 p.
- Vaipani. 2002. Vaipani Herbal Ayurvedic Partisthan—A herbal ayurvedic cosmetics company. <http://www.vaipani.com/skincare/skin%20Care-Page3.html>. 2 p.

---

John K. Francis, Research Forester, U.S. Department of Agriculture, Forest Service, International Institute of Tropical Forestry, Jardín Botánico Sur, 1201 Calle Ceiba, San Juan PR 00926-1119, in cooperation with the University of Puerto Rico, Río Piedras, PR 00936-4984