

Annatto or Achiote, *Bixa orellana*



Bixa orellana growing as an ornamental in Costa Rica.

Bixa orellana is a shrub or small tree native to tropical parts of Central and western South America – now widely distributed throughout the tropics as an ornamental or for commercial seed production – that is the source of the natural dye called annatto in English (from the Carib word for the plant), *achiote* in Spanish (which comes from the Nahuatl word for the shrub) and *urucú* in Portuguese (Brazil, from the Amazon region Tupi-Guarani language). It is sometimes given the common name of lipstick tree. This woody plant, that is one of five species in the only genus in the family Bixaceae, is hardy in zones 10-12.

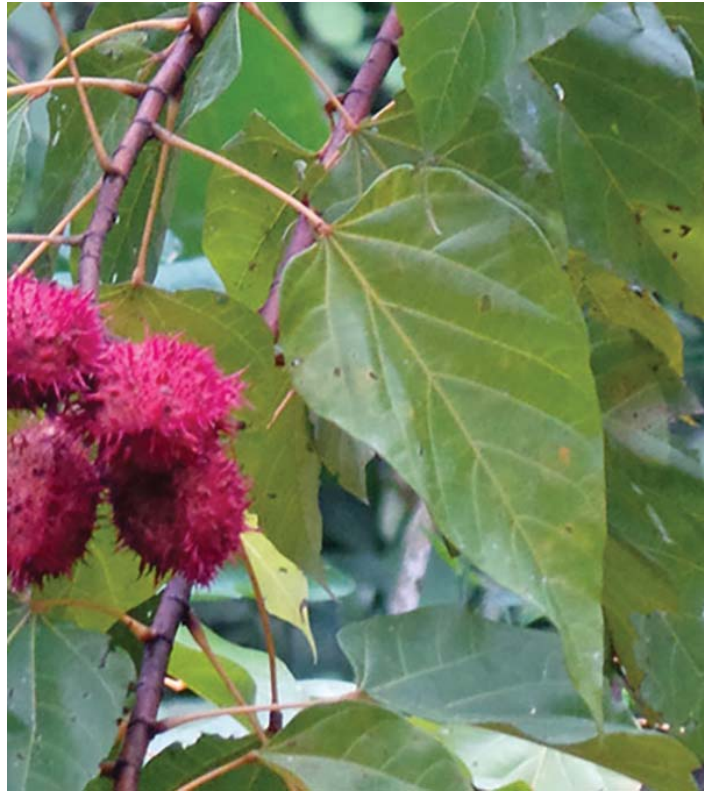
Annatto comes from the waxy covering on the plant's seeds. The carotenoid pigments bixin and norbixin are primarily responsible for the red-orange color. Indigenous peoples from Mexico to South America used this to make red body paint and lipstick, as well as using it as a spice and other plant parts for a variety of medicinal purposes. Annatto is also used in many traditional dishes from this area to provide both a yellow to reddish-orange and subtle flavor, and is often used to color and flavor rice in place of the much more expensive saffron. The Spanish and Latin American seasoning *sazón* is made from *achiote* seeds, cumin, coriander seeds, salt, and garlic powder. Before synthetic dyes were available it was used for coloring fabric and paints as well as foodstuffs. This natural dye is one of

the most important natural food grade colorings (FDA GRAS (Generally Recognized As Safe) status), still used in many commercial products including butter, margarine, cheese, other dairy products, bakery items, salad dressings, snack foods and chorizo. Both oil- and water-soluble extracts are available commercially as an alternative to synthetic beta-carotene. It is used in the cosmetic industry to a much lesser degree. The main commercial producing countries are Brazil, Peru and Kenya, with the latter two the main exporters to the US and Europe, respectively.



The waxy covering on the seeds of *Bixa orellana* (L) are used to make annatto or achiote (C) that is used for coloring many food products (R).

This broadleaf evergreen plant grows 20-30 feet tall under ideal conditions. It is generally multi-trunked with smooth pale to dark brown bark that often becomes fissured with age and inner bark with orange sap. The branches are greenish and scaly when young and ringed at the nodes. The simple leaves are arranged spirally. Each glossy, pointed ovate leaf is cordate to truncate at the base where it attaches to the long petiole which is swollen at both the base and end.



Plants have glossy, heart-shaped leaves.



Bixa orellana flowers have five petals and many stamens.

Plants bear terminal clusters (branched panicles) of 8-50 bright white to pink, or sometimes purple, flowers. Each fragrant two-inch flower generally has five large petals (occasionally more or fewer) and numerous central stamens with violet anthers, so it resembles a single wild rose. Pollination is by native insects, as well as by honeybees.

Flowers are followed clusters of globose, red-brown, two-valved capsules covered in dense, soft spiky bristles that resemble the bur of a chestnut tree (*Castanea* spp.) The pods dry out as they mature 3-5 months after pollination, to eventually split open to expose the numerous seeds. Each angular, obovoid seed is covered with a thin, bright orange to red fleshy coating and small whitish aril. Plants are productive for 15 to 20 years.



Flowers are followed by clusters (L) of globose pods densely covered in soft spines (LC) that turn brown as they mature (RC) and split open to release the seeds covered with red, fleshy coating (R).

Growing *B. orellana* outdoors requires a frost-free, warm, humid climate, a sunny location, and well-drained soil, but it could be cultivated as a container plant to be moved indoors during cold weather in other areas. It makes a very ornamental specimen plant or can be grown as a hedge, and responds well to pruning to keep it small enough to grow in a large container (18-30" wide and 14" deep). It can

be a conversation piece on a patio or deck during the summer, but must be brought inside before the first frost to overwinter in a bright, heated space. It is tolerant of nutrient-poor soil so does not require much fertilization. This plant can be propagated from seed or stem cuttings, but those from cuttings flower more prolifically and bear fruit earlier than seed-grown plants. Few nurseries in the Midwest offer this species, but they are available from some commercial growers in Florida and seeds are frequently offered for sale online from individuals or companies.



Grow *B. orellana* in full sun and well-drained soil.

– Susan Mahr, University of Wisconsin - Madison

Additional Information:

- *Bixa orellana* – on the Missouri Botanic Garden’s Kemper Center for Home Gardening website at <http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?kempercode=e852>