

Jatropha gossypifolia L.
EUPHORBIACEAE

red physic nut

Synonyms: *Adenoropium gossypifolium* Pohl
Jatropha elegans (Pohl) Klotzsch in Seemann



General Description.—Red physic nut, also known as belly-ache bush, figus nut, wild cassava, higuereita cimarrona, tautuba, túatúa, purga del fraile, médicinier noir, médicinier bâtard, médicinier rouge, is a short-lived perennial shrub 0.5 to 2 m in height and 1 to 3 cm in basal diameter. It may be evergreen or deciduous, depending on climate. The plant usually has a single stem and is woody at the base. The small number of branches are stout, green, and semi-woody. A cloudy, yellow sap collects when stems and branches are cut. Red physic nut has a short taproot, robust laterals, and many fine tertiary roots and is usually not deeply rooted. The opposite leaves are three- or five-lobed, 3 to 13 by 3 to 19 cm, reddish or purplish tinged when young and green when fully developed. Small red or purple flowers are borne in terminal corymbose cymes. The fruits that follow are oblong, three-lobed capsules that are green, turning tan at maturity. Within are three mottled, gray-brown or grayish-red seeds (Burkill 1994, Howard 1989, Liogier 1988, Parrotta 2001).

Range.—Red physic nut is a native of the New World (Burkill 1994). The original range is not

known, but today it grows wild from Florida through the West Indies and from Mexico through tropical South America (Howard 1989). It has naturalized in most tropical areas of the world (Burkill 1994).

Ecology.—Red physic nut grows on nearly all types of soils within its range. In Puerto Rico, it may be found in areas receiving from 750 to about 2000 mm of annual precipitation. The species is more common in soils with high base saturation, such as dry areas, sites near the ocean, and soils derived from limestone. Red physic nut usually requires disturbance to establish itself and does not compete well with tall grass or heavy weed growth. It is intolerant of shade. Although plants may survive for a season in moderate shade, they need full or nearly full sun for longer-term survival and fruiting. Cattle and horses generally avoid red physic nut, except in extreme shortages of forage, so that the species is often abundant in overgrazed range and poorly managed pastures. It is also common in waste lands, roadsides, poorly tended agricultural fields, and river overflow areas.

Reproduction.—Flowering in India occurs from February through July (Parrotta 2001). Sometimes both flowers and fruits will be present at the same time on plants. Upon drying, the capsule valves spring open propelling the seeds a few centimeters. It is not known if there are other seed dispersal mechanisms. Seeds collected in Puerto Rico averaged 0.017 ± 0.001 g/seed or 59,000 seeds/kg. The seeds of this collection were highly variable in weight (C.V.= 53.7 percent) and just 4 percent germinated. Collecting seed in quantity is difficult because capsules are mature for only a short period before discharging their seeds, and there are only a few capsules per large plant at any time.

Growth and Management.—Red physic nut usually grows without branches during its first year and adds adventitious branches in the year or two following. Growth is about 0.5 m per year and plants usually live 2 or 3 years. The species is considered an agricultural weed but can be

suppressed by common weed-control practices.

Detriments and Benefits.—Red physic nut contains toxins in the seeds, sap and other tissues, capable of killing humans (Marcano-Fondeur 2002). Apparently, poisoning cases are rare. Extracts of the plant are used as a purgative and emetic, and to treat headache, diarrhea, venereal disease, skin sores, mouth sores, and cancer (Burkill 1994, Parrotta 2001). The use of the seeds in herbal medicine is advised against because of their high toxicity (Liogier 1990). Phytoactive chemicals found in tissues of red physic nut include the protease curcain, the alkaloid jatrophine, the cyclic heptapeptide, cyclogossine A, saponins, and numerous fatty acids (Burkill 1994, Horsten and others 1996, Marcano-Fondeur 1992, Ogbobe and Akano 1993). The seeds contain 36 percent oil (Ogbobe and Akano 1993) and are used as an illuminant in Africa (Burkill 1994). Swaths of plants are frequently established around villages in Africa as fire barriers. The species is also attributed magical powers that protect against lightning, snakes, and violence (Burkill 1994). The wood is soft and weak and of little use. A red-leafed variety is used as an ornamental (Howard 1989).

References

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