Brazilian Peppertree: Watch Out for This Lesser-Known Relative of Poison Ivy

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PRACTICE **POINTS**

- The Anacardiaceae family contains several plants, including Brazilian peppertree and poison ivy, that have the potential to cause allergic contact dermatitis (ACD).
- Hot spots for Brazilian peppertree include Florida and California, though it also has been reported in Texas, Hawaii, Georgia, Alabama, Arkansas, Nevada, and Arizona.
- Alkenyl phenols (eg, cardol, cardanol) are the key sensitizers found in Brazilian peppertree.
- Treatment consists of supportive care and either topical, oral, or intramuscular steroids depending on the extent and severity of the ACD.

Brazilian peppertree (*Schinus terebinthifolia*), a member of the Anacardiaceae family, has invaded territory throughout the world, including the southeastern and western United States. Similar to fellow family members poison ivy and poison oak, Brazilian peppertree causes allergic contact dermatitis (ACD) in susceptible individuals. As this pest increases its range, dermatologists living in endemic areas should familiarize themselves with Brazilian peppertree, its effects on the skin, and how to treat any associated ACD.

Brazilian peppertree (*Schinus terebinthifolia*), a member of the Anacardiaceae family, is an internationally invasive plant that causes allergic contact dermatitis (ACD) in susceptible individuals. This noxious weed has settled into the landscape of the southern United States and continues to expand. Its key identifying features include its year-round white flowers as well as a peppery and turpentinelike aroma created by cracking its bright red berries. The ACD associated with contact—primarily with the plant's sap—stems from known alkenyl phenols, cardol and cardanol. Treatment of Brazilian peppertree–associated ACD parallels that for poison ivy. As this pest increases its range, dermatologists living in endemic areas should familiarize themselves with Brazilian peppertree and its potential for harm.

Brazilian Peppertree Morphology and Geography

Plants in the Anacardiaceae family contribute to more ACD than any other family, and its 80 genera include most of the urushiol-containing plants, such as *Toxicodendron* (poison ivy, poison oak, poison sumac, Japanese lacquer tree), *Anacardium* (cashew tree), *Mangifera* (mango fruit), *Semecarpus* (India marking nut tree), and *Schinus* (Brazilian peppertree). Deciduous and evergreen tree members of the Anacardiaceae family grow primarily in tropical and subtropical locations and produce thick resins, 5-petalled flowers, and small fruit known as drupes. The genus name for Brazilian peppertree, *Schinus*, derives from Latin and Greek words meaning "mastic tree," a relative of the pistachio tree that the Brazilian peppertree resembles.[1] Brazilian peppertree leaves look and smell similar to *Pistacia terebinthus* (turpentine tree or terebinth), from which the species name *terebinthifolia* derives.[2]

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Brazilian peppertree originated in South America, particularly Brazil, Paraguay, and Argentina.[3] Since the 1840s,[4] it has been an invasive weed in the United States, notably in Florida, California, Hawaii, Alabama, Georgia,[5] Arizona,[6] Nevada,[3] and Texas.[5,7] The plant also grows throughout the world, including parts of Africa, Asia, Central America, Europe,[6] New Zealand,[8] Australia, and various islands.[9] The plant expertly outcompetes neighboring plants and has prompted control and eradication efforts in many locations.[3]

Identifying Features and Allergenic Plant Parts

Brazilian peppertree can be either a shrub or tree up to 30 feet tall.[4] As an evergreen, it retains its leaves year-round. During fruiting seasons (primarily December through March[7]), bright red or pink (depending on the variety[3]) berries appear (Figure 1A) and contribute to its nickname "Florida holly." Although generally considered an unwelcome guest in Florida, it does display white flowers (Figure 1B) year-round, especially from September to November.[9] It characteristically exhibits 3 to 13 leaflets per leaf.[10] The leaflets' ovoid and ridged edges, netlike vasculature, shiny hue, and aroma can help identify the plant (Figure 2A). For decades, the sap of the Brazilian peppertree has been associated with skin irritation (Figure 2B).[6] Although the sap of the plant serves as the main culprit of Brazilian peppertree–associated ACD, it appears that other parts of the plant,

FIGURE 1. Features of Brazilian peppertree. A, Characteristic 4- to 5-mm, mature red berries or drupes. Image courtesy of Shaun Winterton, Aquarium and Pond Plants of the World, Edition 3, USDA APHIS PPQ, Bugwood.org, under Creative Commons Attribution 3.0 License. B, Brazilian peppertree flower. Image courtesy of James H. Miller, USDA Forest Service, Bugwood.org, under Creative Commons Attribution 3.0 License.

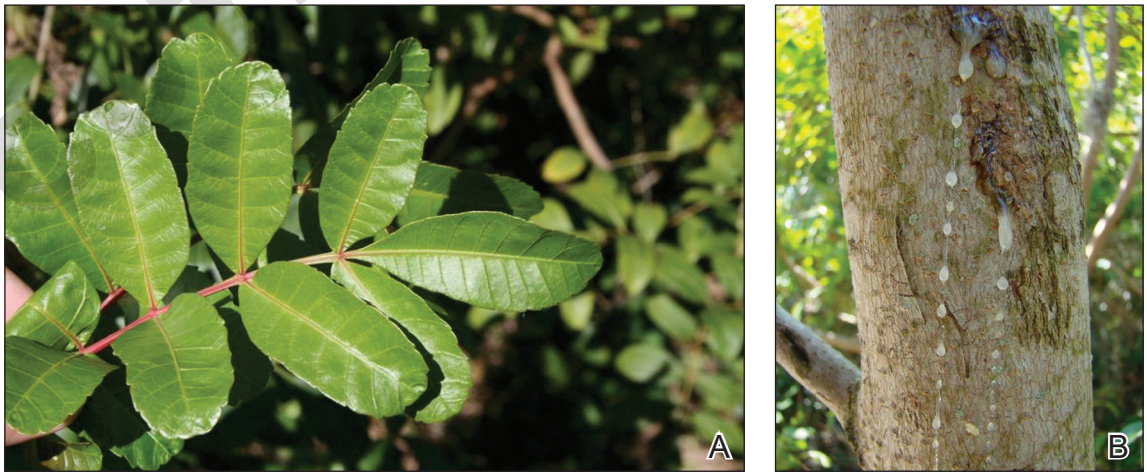

FIGURE 2. A, Brazilian peppertree leaves, which range from 10 to 22 cm in length (individual leaflets range roughly 3–6×2–3.5 cm). Image courtesy of Stephanie Sanchez, Bugwood.org, under Creative Commons Attribution 3.0 License. B, Brazilian peppertree trunk and oozing sap. The trunk generally is 10 to 30 cm in diameter. Image courtesy of Rebekah D. Wallace, University of Georgia, Bugwood.org, under Creative Commons Attribution 3.0 License.

including the fruit, can cause irritating effects to skin on contact.[11,12] The leaves, trunk, and fruit can be harmful to both humans and animals.[6] Chemicals from flowers and crushed fruit also can lead to irritating effects in the respiratory tract if aspirated.[13]

Urushiol, an oily resin present in most plants of the Anacardiaceae family,[14] contains many chemicals, including allergenic phenols, catechols, and resorcinols.[15] Urushiol-allergic individuals develop dermatitis upon exposure to Brazilian peppertree sap.[6] Alkenyl phenols found in Brazilian peppertree lead to the cutaneous manifestations in sensitized patients.[11,12] In 1983, Stahl et al[11] identified a phenol, cardanol (chemical name 3-pentadecylphenol[16]) C15:1, in Brazilian peppertree fruit. The group further tested this compound's effect on skin via patch testing, which showed an allergic response.[11] Cashew nut shells (*Anacardium occidentale*) contain cardanol, anacardic acid (a phenolic acid), and cardol (a phenol with the chemical name 5-pentadecylresorcinol),[15,16] though Stahl et al[11] were unable to extract these 2 substances (if present) from Brazilian peppertree fruit. When exposed to cardol and anacardic acid, those allergic to poison ivy often develop ACD,[15] and these 2 substances are more irritating than cardanol.[11] A later study did identify cardol in addition to cardanol in Brazilian peppertree.[12]

Cutaneous Manifestations

Brazilian peppertree–induced ACD appears similar to other plant-induced ACD with linear streaks of erythema, juicy papules, vesicles, coalescing erythematous plaques, and/or occasional edema and bullae accompanied by intense pruritus.

Treatment

Avoiding contact with Brazilian peppertree is the first line of defense, and treatment for a reaction associated with exposure is similar to that of poison ivy.[17] Application of cool compresses, calamine lotion, and topical astringents offer symptom alleviation, and topical steroids (eg, clobetasol propionate 0.05% twice daily) can improve mild localized ACD when given prior to formation of blisters. For more severe and diffuse ACD, oral steroids (eg, prednisone 1 mg/kg/d tapered over 2–3 weeks) likely are necessary, though intramuscular options greatly alleviate discomfort in more severe cases (eg, intramuscular triamcinolone acetonide 1 mg/kg combined with betamethasone 0.1 mg/kg). Physicians should monitor sites for any signs of superimposed bacterial infection and initiate antibiotics as necessary.[17]

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