

Botanical Briefs: The Mango Tree—*Mangifera indica* L.

Thomas W. McGovern, MD, Fort Wayne, Indiana
Steven LaWarre, BS, Grand Rapids, Michigan

Clinical Importance

Mango-induced allergic contact dermatitis has been reported from tropical and subtropical areas throughout the world, including the Philippines, Argentina, the Dutch West Indies, the East Indies, India, Japan, and Florida. During its fruiting season, it is the most common cause of plant dermatitis in Hawaii.

Cutaneous Manifestations

Mango dermatitis is sometimes limited to vesicles at the angles of the mouth, but it usually affects the entire perioral area, and it may affect the buccal mucosa. The hands can carry allergen to the eyes and neck, and these eruptions sometimes become generalized. Children who get in mango fights (akin to northern snowball fights) may develop more widespread dermatitis (Figure 1). Rarely, urticaria and asthma occur after eating an intact fruit.¹ Irregular patterns are seen after allergic children climb mango trees.

Family

The mango is a member of the Anacardiaceae (sumac/cashew) family.

Distribution of the Plant

The mango is the most popular fruit tree in tropical and subtropical America,² and some 35 *Mangifera* species grow in Southeast Asia.³ Unlike the related cashew tree, the mango tree grows in the continental United States in southern portions of Florida, Texas, and California. The trees derive from southeastern Asia and Indomalaysia, but many are now cultivated or have become naturalized in tropical regions throughout the world because they are important sources of food and timber.



Figure 1. Forearms of a Hawaiian schoolboy with allergies to mangoes, whose dermatitis developed after a mango fight. (Photograph courtesy of Richard H. Gentry, MD.)

Dermatitis-Inducing Plant Parts

The growing mango plant and many of the commercial products derived from it, along with its contact with mango wood or sawdust, are potential causes of dermatitis. The leaves, bark, stems, tree latex, and skin (pericarp)(Figure 2)⁴ of the mango contain several different sensitizing resorcinols but no catechols. Sensitized people may safely ingest the fruit juice and peeled fruit.

Nomenclature

Mangifera is a combination of the common name (mango) and *fero* (“to bear” in Latin). *Indica* means “of India,” the mango plant’s native land. The timber has a number of local names, including machang (Malaya and Sarawak), sepam (Malaya), mangga (India and Pakistan), xoai (Vietnam), and membatjang (Indonesia).

Dr. McGovern is in private practice in Fort Wayne, Indiana.
Mr. LaWarre is from Meijer Gardens, Grand Rapids, Michigan.
Reprints: Thomas W. McGovern, MD, Fort Wayne Dermatology,
PC, 1234 E Dupont Rd, Suite 6, Fort Wayne, IN 46825.



Figure 2. A mango with intact skin. Note the allergenic latex oozing from where the stem was attached. (Photograph courtesy of Richard H. Gentry, MD.)



Figure 3. Mango tree growing in Hawaii. Note the greenish, ovoid fruit. (Photograph courtesy of Richard H. Gentry, MD.)

Identifying Features and Plant Facts

The mango tree grows 15 to 30 m high and bears green to yellow-red ovoid fruit (Figure 3), which has been used in recipes for chutney, pickles, and squash. The ground seed has been used as a source of flour. During harvesting of the fruit, stem sap may contaminate the peel, which then shows bleached, varnished, or blackened patches because of the self-melanizing (on contact with air) urushiol common to allergenic Anacardiaceae. The timber is used locally for building boats, furniture, and floors.

Allergens

The mango appears to be a less powerful primary sensitizer than poison ivy and poison oak (*Toxicodendron* species). North Americans already sensitized to poison ivy are more likely to develop mango dermatitis than are the inhabitants of mango-growing regions. Though mangoes are plentiful in Hawaii and Latin America, people native to those areas rarely react to them.⁵ It is thought that early oral exposure to the mango results in immunologic tolerance.

The main allergens in toxicodendrons are catechols, whereas the cross-reacting allergens in the

mango are resorcinols. The catechols have been demonstrated to possess greater allergenicity than the resorcinols. In the skin, Langerhans cells facilitate the development of helper T cells that recognize foreign, epidermal antigens. Oral ingestion of these antigens (as with mangoes) bypasses the Langerhans cells and may allow the development of CD8 T cells that could inhibit the response to epidermally applied antigens.⁶ Early oral exposure to the less allergenic resorcinols may induce a state of tolerance.⁵

REFERENCES

1. Kahn IS. Fruit sensitivity. *South Med.* 1942;35:858-859.
2. Lampe KF. Dermatitis-producing Anacardiaceae of the Caribbean area. *Clin Dermatol.* 1986;4:171-182.
3. Beaman JH. Allergenic Asian Anacardiaceae. *Clin Dermatol.* 1986;4:191-203.
4. Knight TE, Boll P, Epstein WL, et al. Resorcinols and catechols: a clinical study of cross-sensitivity. *Am J Contact Dermat.* 1996;7:138-145.
5. Hurtado I. Poisonous Anacardiaceae of South America. *Clin Dermatol.* 1986;4:183-190.
6. Williford PM, Sheretz EF. Poison ivy dermatitis: nuances in treatment. *Arch Fam Med.* 1994;3:184-188.