

**SKIN MANIFESTATIONS CAUSED BY BRAZILIAN TRAUMATIC, ALLERGENIC,
AND VENOMOUS PLANTS: MAIN SPECIES, THERAPEUTIC AND PREVENTIVE
MEASURES.**

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ABSTRACT. Brazilian flora is very rich and a large number of specimens can cause adverse reactions, from mild erythema to cutaneous necrosis. Plants or vegetal extracts are always suspected of contact dermatitis; they are found in all types of environments, including dwellings. Other harmful effects, which can be identified by clinical manifestations and the aid of the patient, are phytophotodermatitis, traumas, thorn infections, chemical irritations, or urticaria caused by *Urtica sp.* Knowledge on the most important plants and their effects on human skin are very useful, and diagnosis is very important in treatment of the complications.

KEY WORDS: Brazilian plants, envenoming by plants, Anacardiaceae, Phytophotodermatitis.

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INTRODUCTION

Brazilian flora is one of most diverse on the planet. Traumatic, allergenic and venomous plants are found everywhere in the country, including in houses. Therefore, the risk of human contact increases, with traumatic, allergic or toxins provoked manifestations, which is seen more frequently than in the past. Practically all these plants can be associated with dermatitis, which hinders diagnosis of the responsible species (2,8,9,14,15). Another common problem is the introduction of exotic species, especially ornamental plants, although plants can also be introduced or adapted to Brazilian forest environments for alimentation or research. Some plants have toxin or venom in their flowers, leaves, stems, and roots, but the most common harmful mechanisms are physical, traumatic, and allergic actions (2,9,15).

Although accident incidence is high for contact frequency, epidemic data is scarce (2,8,9,14,15).

A practical classification of the effects to human skin can be obtained using the harmful effects of the plants as a starting point.

Contact urticaria

Urtigas or nettles (*Urtica sp*) present hollow bristles with sharp tips on the surface of the leaves; these can penetrate human skin and liberate inflammation mediators (mainly histamine and acetylcholine) (4,15). *Urtica dioica* is very common in Brazil and found close to garbage deposits and stables (14) (Figure 1). The manifestations are urticarial, with intensely itchy erythematous and edematous plaques (Figure 2). The reaction happens some minutes after contact; it is less commonly caused by tulip bulbs, perfumes, spices, nuts, coffee, and other vegetables (8,9). Treatment is usually with antihistamines and topical corticosteroids.

Phytophotodermatitis

Psoralens are responsible for reactions, linking to cellular DNA and increasing sensitivity to light (2,9). The classic lesions are initial vesicles and blisters over an erythematous skin with evolution to subsequent melanosis, with linear or bizarre distribution, which appears after

solar exposure in leisure environments (11). Phytophotodermatitis or phytophotomelanism are mainly associated with citric fruits (2,9,12), figs (16), celery, parsley, green onions, and mango trees (Figure 3). It has been used for thousands of years with mama-cadela (*Brosimum gaudichaudii*), a plant of the Brazilian cerrado, in the treatment of vitiligo (Figure 4).

Topical corticosteroids relieve the symptoms of hyperpigmentation, but do not interfere in its evolution.

Dermatitis from physical and chemical irritants

There are no allergic phenomena. Clinical manifestations vary from mild erythema to extensive cutaneous necrosis (8,9).

Physical causes include thorns, bristles, and structures that can penetrate human skin. Such as rosebushes, cacti (7,10), bamboo, and palm trees. These can be important complications, the introduction of plant material can cause foreign body granulomas, and also introduce bacterial agents of common infections, as staphylococcus and streptococcus, and severe infections, as tetanus, sporotrichosis, and mycobacteriosis (2,8,9). Whenever possible, harmful structures should be extracted from the victim's skin.

Chemical aggression occurs when there is skin contact with toxic saps (containing alkaloids, proteolytic enzymes, saponins, anthraquinones, phenolic compounds, or calcium oxalate crystals) (2,9). For example, the Euphorbiaceae family (“colchão-de-noiva” and “bico-de-papagaio”) and *Anthurium* species have a milky sap that can irritate the skin and mucous membranes due to calcium oxalate crystals (5). The *Euphorbia milli* (crown-of-thorns, “colchão-de-noiva”) is a plant native to Madagascar that has calcium oxalate in its sap and thorns on the branches (8) (Figure 5).

Some plants present irritating mechanisms that act on the skin and mucous membranes. The same plants are used for ornamental or culinary purposes, and, consequently are in frequent contact with human beings. A classic example is the peppers (genus *Capsicum*), which have a potent irritating agent in the capsaicin that provides their pungency and can be used as a pain process blocker, by acting on the P substance (pain mediator). Other examples are "comigo-

ninguém-pode" (*Dieffenbachia sp*), pineapple, and tobacco. The lachrymatory effect of onions is caused by propenylsulphenic acid (2,9).

Any plant contact can cause mucous or cutaneous rashes, which may present systemic manifestations. Immediate or early intensive washing of the site can help. Corticosteroid creams are useful in the control of the symptoms (8,9,14).

Allergic Contact Dermatitis

Allergic phenomena of sensitization (type IV) can be caused by contact with *any* plant or vegetable extract, but plants from the Anacardiaceae family are the most important in the genesis of this process (1,2,8,9,14,15).

These plants possess channels with a resinous sap that mixes with air, disseminating into the environments near the trees (9). They belong to the Poison ivy and Poison oak (genus *Rhus* or *Toxicodendrum*) family; that are responsible for most of the dermatitis caused by plants in the USA. The cashews (*Anacardium occidentale*) (3,6), mangoes (*Mangifera indica*), cajás (*Spondias mombin*), umbus (*Spondias tuberosa*), and aroeiras are native to Brazil, and are feared by Brazilian rural workers.

The most common species of aroeiras are *Lithraea molleoides*, the white aroeira or aroeira-brava, *Lithraea brasiliensis*, the aroeira-do-mato, *Schinus terebenthifolius*, the red aroeira, and *Schinus molle*, the aroeira-salso (8,14) (Figure 6). They are found all over Brazil, especially the Southeast region. In popular medicine, the peel and/or leaves are cooked and used to accelerate cicatrization (in ulcers, arthritis, erysipelas, etc) and also as infusion for diarrhea, bronchitis, and other inflammations (13).

The injuries caused by aroeiras, which liberate irritating substances from their leaves, are serious and common in the country. Manifestations settle down in one or two days, with acute eczema in exposed areas (primary, induced by light, (13) and secondary, in the genitals). It is classic to hear that "the victim was asleep under the aroeira". The resolution can take up to three weeks (Figures 7 and 8).

Treatment uses topical or systemic corticosteroids, depending on the extension of the dermatitis. Up to 80 mg doses of systemic steroids can be necessary to control signs and symptoms.



Figure 1: *Urtica dioica*, common nettle or urtiga. Photographer: Eliete Correa Soares.



Figure 2: Urticarial manifestations caused by contact with urtiga or nettle.



Figure 3: Phytophotomelanosis caused by mango fruit. Note the lesions irregular distribution.



Figure 4: *Mama-cadela* plant, utilized in the treatment of vitiligo in Brazil.



Figure 5: *Euphorbiacea* (“colchão-de-noiva”). Besides presenting thorns, this plant can cause dermatitis due to the high amounts of calcium oxalate in the milky sap of its leaves and stem.



Figure 6: Aroeira-salso. This tree is associated with severe contact dermatitis in farm workers in Brazil. The fruit is the red pepper, utilized in culinary and when ingested can potentially cause cutaneous reactions.



Figura 7: Severe contact dermatitis caused by aroeira-salso. The patient was a farm worker that had been next to an aroeira tree one day before the eruption.



Figure 8: The same patient three days after the treatment with systemic corticosteroids.

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