

Review Article

Plants and dermatology: A panoramic view

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Abstract Plants are very diverse in nature including location, seasonal variation, distribution and fruit production. They provide oxygenation as well as being a food source. Certain medical and dermatological treatments are derived from plants. However, they may also cause cutaneous disease.

Key words

Plants, dermatology

In dermatology, plants can exert different effects¹. There are already excellent books and papers about plants and dermatology and good resources and databases online about this topic. Examples of these resources include “Botanical Dermatology Database (BoDD),” an electronic re-incarnation of Botanical Dermatology by John Mitchell and Arthur Rook, that was originally published in 1979 (<http://bodd.cf.ac.uk/>) and ‘Plants that cause skin problems,’ (<http://www.dermnetnz.org/dermatitis/plants/>).

Table 1 summarizes the possible interactions between plants and dermatology. The majority of interactions come from contact with plants. In allergic contact dermatitis, the allergens might be on any part of the plant. In some fruits, the allergen is on the skin only. The allergens of the plants might be airborne, or carried by rain or animals.¹

Gardeners, florists, and housewives are at most risk for contact dermatitis from plants. If the

reaction to the allergen is severe enough it may necessitate a change of profession or activity. Cross reactions between different plants also exist for example, proteins from the rubber tree plant can cross-react with many fruits, so patients that develop a latex allergy can also have problems when they consume bananas, avocados, kiwi fruit, figs, and chestnuts.. Patch testing with a panel of allergens or with pieces of the actual plants may confirm the diagnosis. However, patch testing with some plants are contraindicated because of risk of sensitization.

The distribution of the plants remains one of the major determinants for the most common interactions seen in a particular area. For example, poison ivy and poison oak are common in the USA, primula in Europe, and parthenium in India.

However, there are other factors that may come into play within the relationship between plant and clinical manifestations. These may include religious beliefs, cultural traditions, and public beliefs. Dermatology care providers, whether doctors or nurses, should be aware of these factors and explore them with the patient. The public should be educated about the prevalence of certain plants in the community, possible

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Table 1 Few possible interactions between plants and dermatology [2-10]

<i>The effect of plants in dermatology</i>	<i>Remarks</i>
Source for medicines	Several topical and systemic medications in dermatology are derived from plants. ²
Source for emollients	The oils derived from olive or sesame or other plants are used as moisturizers for skin and hair.
A tool for cleaning the oral cavity	For more than 1,000 years, Moslems all over the world have used chewing sticks (Miswak) as an oral hygiene aid. In spite of the introduction of modern oral hygiene devices, many Moslems still prefer to use the natural Miswak. ³ Chewing sticks (miswaks) and miswak extract (<i>Salvadora persica</i>) appeared to increase parotid gland secretion rate and be more effective than tooth brushing for removing plaque from the embrasures. ⁴
Usages to enhance the cosmetic appearance	Henna is widely used plant as skin or hair dye. Contact sensitization to natural henna (<i>Lawsonia inermis</i>) has rarely, if ever, been observed. However, allergic reactions might happen from para phenylenediamine (PPD), sometime mixed with henna. ⁵
A cause of skin reactions from contact with the plants	Contact with some plants might cause urticaria (both by allergic and non allergic mechanism), dermatitis (irritant and allergic), or phytodermatitis (phototoxic and photo allergic). Rarely, contact with plants might precipitate erythema multiform major. Eating a plant to which the patient is allergic might produce a systemic contact dermatitis. ¹ Contact with some plants like cactus may produce a peculiar pattern of dermatitis. ⁶
A cause of skin and systemic complications from traditionally used plants.	Some plants chewed for its psychostimulating effects like quat, ⁷ in Yemen, and betel ⁸ in the western Pacific basin and South Asia, may causes discoloration of the teeth ,oral leukoplakia, submucous fibrosis, and squamous cell carcinoma. Ingestion of some plants like "Kava" in far East Asia can also produce skin changes. ⁹
A source of infection by a variety of microbes.	A prick by plants might inoculate microorganisms like fungi that cause mycetoma and chromoblastomycosis, <i>Clostridium tetani</i> , <i>Staphylococcus aureus</i> , <i>Sporothrix schenckii</i> , and atypical mycobacteria. ¹
A cause of severe local reactions from plants used topically to treat skin conditions	There are many herbs used to treat skin conditions, especially in rural areas. This type of herbal therapy might end with serious skin complications. Garlic, for example, used topically to treat alopecia areata can cause skin burn.
A cause of systemic complication as a result of toxicities from ingestion of herbal therapies to treat skin diseases.	Ingestion of plants as a part of herbal therapies may cause intoxication and may lead to death. ¹⁰

*These are listed from most useful to the most harmful and are admittedly biased by the anecdotal and unscientific observations of the author.

reactions and how to deal them. For instance for poison ivy allergy, persons with known susceptibility not only should avoid touching plants having the grouped "leaves-of-three," but should also exercise care in handling articles of clothing, tools, toys, and pets that have come in contact with such plants.

In an area where the prickly pear cactus grows and is harvested, people should be educated

about appropriate picking procedure. This would include use of protective gloves, picking only when the plant is wet, and ceasing picking when it is windy, as the spiny structures (glochids) associated with it can become airborne⁶.

The use of substances derived from plants in treating diseases is known as herbal therapy. Uncontrolled use of herbal remedies, known as

alternative treatment methods, may lead to side effects and serious treatment complications. A patient was reported who developed cutaneous burn from applying garlic on the skin to treat trigeminal neuralgia.¹¹ It is obvious that an awareness program about the ill effects of unsupervised topical and systemic herbal therapies, as well as, habitual use of some herbs should also be initiated in the community taking into consideration the commonest problems related to the plants in each area.⁷

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