

Occupational contact dermatitis caused by *Eucalyptus* species and *Tanacetum parthenium*

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Eucalyptus species and *Tanacetum parthenium* are widely encountered in daily life, but the reported prevalences of contact dermatitis caused by *Eucalyptus* species and by *T. parthenium* are different.

CASE REPORT

A 45-year-old non-atopic female florist presented with a 6-month history of pruritic erythema on her face and both hands. The symptoms improved with the occasional use of topical corticosteroids, but

worsened after she handled *Eucalyptus* species and/or *T. parthenium*. Physical examination showed oedematous dark red pruritic erythema with exudate covering her face, neck, and both hands. Other parts of the body were not involved. The results of Japanese baseline series patch testing with sesquiterpene lactone mix were negative on day (D) 2, D3, and D7. Positive reactions were seen to plant materials patch tested “as is,” namely, leaves of *Eucalyptus* species (++ on D2 and D3), leaves of *T. parthenium* (++ on D2 and D3), and flower petals of *T. parthenium* (+ on D2 and ++ on D3; Figure 1). Therefore, the patient was advised to avoid these plants, but the symptoms appeared

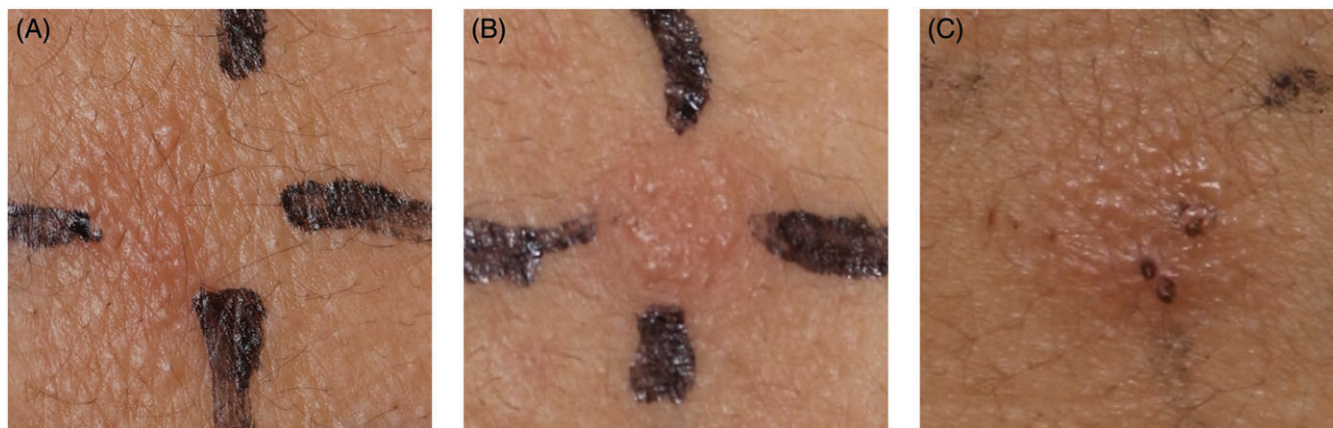


FIGURE 1 Patch testing showed positive reactions on day 3 to (A) leaves of *Eucalyptus* species, (B) leaves of *Tanacetum parthenium*, and (C) flower petals of *T. parthenium*. The test samples were applied on the upper back “as is”

whenever her job required her to handle them. Patch tests with these materials in a healthy volunteer gave negative results. Therefore, we diagnosed occupational contact dermatitis caused by *Eucalyptus* species and *T. parthenium*.

DISCUSSION

We report a case of occupational contact dermatitis in a florist caused by *Eucalyptus* species and *T. parthenium*. The plants are not chemically related. The patient was concomitantly sensitized to both, but the specific substances responsible for her symptoms were not identified. *T. parthenium*, also known as "feverfew," is recognized in European countries as a major allergen that can cause airborne contact dermatitis.¹ It was introduced in Japan around 1900, and is now widely used as a garden plant or as cut flowers. Allergens in *T. parthenium* include sesquiterpene lactones, mainly parthenolide, but patch testing with sesquiterpene lactones often yields false-negative results, as observed in our patient.¹ Patch testing "as is" with parts of the *T. parthenium* plant may be a more accurate way to detect allergy, but may also pose a risk of active sensitization.² Therefore, patch testing with parthenolide, which is also included in Compositae mix II (Chemotechnique Diagnostics, Vellinge, Sweden), is recommended.

Eucalyptus species-induced contact dermatitis is rare. Only five previous case reports have been published, all of which involved patients with positive reactions to the leaves of *Eucalyptus* species "as is."^{3–6} Allergens found in *Eucalyptus* include 1,8-cineole (eucalyptol), α -terpineol, α -pinene, α -terpinyl acetate, and limonene, whose allergenicity increases with oxidation.^{5,7} Tea tree (*Melaleuca alternifolia*) oil, which contains several of these components, causes allergic contact dermatitis far more frequently than the plant or eucalyptus oil. The difference may be attributed, in part, to the high 1,8-cineole content in *Eucalyptus* species, which follows a different oxidation pathway than the other components.⁵ This may also explain why few cases of

sensitization by *Eucalyptus* species, which occurred in those with long-term, daily occupational exposure, have been reported.³

CONFLICTS OF INTEREST

The authors have no conflicts of interest to report.

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