

Aromatherapy and occupational allergic contact dermatitis: Two further cases caused by lavender oil and other essential oils

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Currently, the use of natural products and alternative medicine is very fashionable. Aromatherapy is the systemic or topical application of essential oils to “maintain and promote physical, psychological and spiritual well being.”¹ Masseurs are at high risk of developing occupational contact dermatitis caused by fragrances and essential oils^{2,3}; two further cases of occupational contact dermatitis caused by essential oils are described.

CASE REPORTS

A 38-year-old non-atopic male presented with chronic dermatitis of his hands, especially involving the palmars, tenar eminences, and first two fingers (Figure 1A). He had worked as masseur for years; during the previous 4 months, he had begun to practise a new kind of relaxing massage with pure lavender essential oil, diluted 3% in “pet. oil”. Topical steroids gave only transient relief, whereas spontaneous improvement of the eczema during holidays and weekends was reported. Patch testing was performed with the Italian Society of Allergological, Occupational and Environmental Dermatology (SIDAPA) baseline series (Lofarma, Milano, Italy), a botanical integrative series, and the massage oil tested “as is,” on Van der Bend chambers (Van der Bend, Brielle, The Netherlands). Patch tests were applied under occlusion on the patient’s back for 2 days; readings were performed on day (D) 2 and D4 according to ESCD guidelines.⁴ A additional botanical series (FIRMA, Florence, Italy) composed of numerous haptens, selected according to the literature,⁵ was also tested. The patient showed positive reactions to fragrance mix I (++) on D2; (+++) on D4), lavender

absolute 2% pet. (++) on D2; (+++ on D4), and the lavender oil tested “as is” (++) on D2; (++) on D4) (Figure 1B).

A 40-year-old atopic masseur with a history of psoriasis presented with chronic eczema of both wrists and the palms of his hands, and with fissured acral pulpitis (Figure 2A). The stop-restart test with the massage oils used gave a positive result. Patch tests with the SIDAPA series, the botanical series and the patient’s products tested “as is” were performed. Positive reactions were observed to fragrance mix I (+ on D2; ++ on D4), nickel sulfate (++) on D2; (++) on D4), propolis 20% pet. (+ on D2; + on D4), lavender absolute 2% pet. (+ on D2; + on D4), peppermint oil 1% pet. (+ on D2; ++ on D2), pyrethrum 2% pet. (+ on D2; ++ on D3), and three of five of his own essential oils (Figure 2B). These five essential oils included products that were also tested in three control cases, with negative results.

DISCUSSION

According to the World Health Organization, 80% of the world’s population use plant-derived medicines for primary care: approximately one-third of natural medicines are used for the treatment of wounds or skin disorders. Lavender oil is an essential oil obtained from lavender (*Lavandula angustifolia*), a flowering plant species belonging to the genus *Lavandula*, which is a member of the Lamiaceae family. Lavender is commonly used in personal and household care items, as well as in aromatherapy. It has many useful properties, such as being fragrant, and having sedative, soothing and antimicrobial effects; it is also considered to be antidepressive and effective for the treatment of burns



FIGURE 1 (A), Chronic eczema of the first patient's hands, involving the palmar surfaces, tenar eminences, and first two fingers. (B), Results of a patch test in the first patient on day 4 (96 hours)

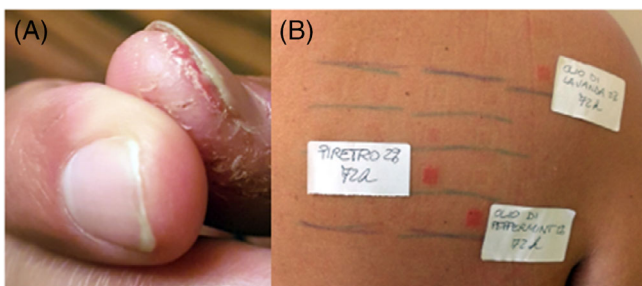


FIGURE 2 (A), Fissured acral pulpitis of the second patient's hands. (B), Results of a patch test in the second patient on day 4 (96 hours)

and insect bites.⁶ The main components of lavender oil, that is, the terpenes linalool, linalyl acetate, and caryophyllene, have been shown to autoxidize, forming sensitizing hydroperoxides.⁷ Pure lavender oil was shown to be a weak sensitizer, but the oxidized form was classified as a moderate allergen. Furthermore, essential oils are usually complex mixtures in which new sensitizing substances could form over time in chemical reactions between the components of the mixture; different sensitizers together could induce a stronger inflammatory reaction than a single one.^{7,8} Identifying the responsible allergenic component of essential oils is difficult, and, moreover, co-sensitization to multiple perfumes and essential oils is common. This may be explained by pseudo-cross-reactivity, cross-reactivity, or concomitant sensitization.⁹ In our cases, the patients showed many allergies simultaneously; both of them were allergic to fragrance mix I. For this reason, it is important to advise patients who are allergic to perfumes to avoid “natural” products. A recent study showed that the prevalence of contact allergy to lavender was 2.2%, and that the three

most frequent concomitant positive reactions were to fragrance mix I, fragrance mix II, and *Myroxylon pereirae* resin.¹⁰ It is important to remember that the exposure to lavender could go unreported, because patients have the false belief that anything “natural” is “safe.”

CONFLICTS OF INTEREST

The authors have no conflicts of interest to report.

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