



Critical incident: idiosyncratic allergic reactions to essential oils

W. Maddocks-Jennings

Faculty of Health, Science and Technology, Universal College of Learning, Palmerston North, New Zealand

KEYWORDS

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Summary Essential oils have the potential to initiate allergic reactions due to their volatile and skin absorbent nature. Practitioners and aromatherapy teachers need to be aware of the potential for allergies and be equipped to deal with them if they should arise. Two cases are presented of potentially serious reactions that occurred within a learning situation along with a brief literature critique about allergic reactions to essential oils.

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Introduction

Within the literature there are several examples of isolated cases of allergic reactions to essential oils.²⁰ These can range from relatively minor occurrences of irritation and sensitisation, through to contact dermatitis and the most serious anaphylactic reaction. Allergic reactions are due to an altered immune response, whereby the body reacts in some way to a foreign substance resulting in a hypersensitivity to the substance. The most common is an anaphylactoid reaction (type I), where a person has become extremely sensitised to a substance through previous exposure. These types of reactions include anaphylaxis (most serious), allergic rhinitis and atopic dermatitis. The development of contact dermatitis is usually a delayed hypersensitivity reaction where the person is exposed over a period of time to irritants or haptens. Contact dermatitis can also develop acutely to some allergens, however it is differentiated from atopic dermatitis in that contact dermatitis is localised and atopic dermatitis is widespread. Usually people who develop dermatitis are described as being 'atopic', which means that have a predisposition to develop these conditions through a family history. Another example of an

atopic reaction is hives or urticaria, where the person develops raised red wheals in response to an allergen.²¹

Case studies

Two cases are presented here involving female students who were exposed to essential oils as part of their training. The cases are similar in that both were women in their 20s who were menstruating at the time and who admitted to feeling under enormous pressure with exams and study commitments.

The two incidents given in table occurred 3 yr apart and involved careful documentation according to health and safety procedures within the learning institution. It was felt that nothing could be done to have prevented either situation as both students had been exposed to the essential oils in the past with no known problems with allergies or sensitivities. Both students were counselled to undergo allergy testing at a later date. Following the second incident a policy has been developed to try and raise awareness of the potential problem and to minimise risk as greater numbers of students are being exposed to essential oils during their nursing training. The policy contains the following key points:

1. Essential oils can only be used under the advice and supervision of a qualified aromatherapist as

E-mail address: W.Maddocks@ucol.ac.nz
(W. Maddocks-Jennings).

	Essential oils	Way applied	Response	Treatment
Aromatherapy student	<i>Lavandula angustifolia</i> <i>Origanum marjorana</i> <i>Juniperus communis</i> 2.5% in sweet almond oil	Began massaging feet of client in practical exam situation	Hands tingled, became swollen, redness to arms and throat area, shortness of breath within 3 min of exposure	Oils washed off hands immediately with hot, soapy water and then taken to student health centre, student hypertensive (diastolic BP over 110 mmHg) Antihistamine given and observed
Nursing student	<i>Anthemis nobilis</i>	Inhaled 1 drop of smelling strip in class exercise	'head rush' light-headed, tachycardic nauseated	Moved to fresh air and taken to student health centre, in wheelchair. Hypertensive Monitored for 3 h. No medication given

approved by the Programme Leader of the complementary health programmes.

- Essential oils are obtained from a quality supplier with a clear identification of botanical classification.
- Students are advised to warn the aromatherapist if they know they are allergic to any essential oils or other substances and the aromatherapist will use their discretion as to what is used.
- A maximum of 3–4 essential oils are used in an individual learning session unless the students are actually studying to be aromatherapists.* Recommended maximum exposure is 3–4 different oils in an hour then a fresh air break. The room must be well ventilated.
- Maximum dose for dermal administration for non-aromatherapy students is 1%.
- The aromatherapist or supervising lecturers have a current first aid certificate and are aware of how to recognise an allergic or anaphylactic reaction.
- If a reaction is suspected the aromatherapist or supervising lecturer stays with the person, and sends for help. They are moved to a place of

fresh air and monitored until medical care arrives.

- The lesson plan must contain details relating to the essential oils used (batch number, supplier, any special notes).

The other examples of allergic reaction in the literature either relate to exposure to a single essential oil or to a sensitivity developing to a number of oils over a period of time. For example Selvaag et al.²⁴ describe the case of a 65-yr-old female aromatherapist who developed allergic contact dermatitis over a large part of her body. She became sensitised to lemongrass oil, which then developed into dermatitis upon exposure to many other fragrant compounds including household cleaners. Allergy testing revealed she was sensitive to 17 out of 20 essential oils she used regularly.

As a popular additive in many cosmetic and personal hygiene products teatree essential oil has been implicated in many allergic reactions.^{1,2,11,14} Much effort has gone into describing the reactions and to identify the possible offending constituents.^{3-5,13,23} Various authors have identified different culprits, including eucalyptol,⁶ limonene, alpha terpinene, aromadendrene, terpinene-4-ol, paracycymene, alpha-phellandrene,¹ sesqui terpenoids and sesquiterpinoid hydrocarbons.²⁵ Inhaled

*In this situation the learning is more specific and more closely supervised by the lecturing aromatherapist. At this institution other health courses have introductory sessions on aromatherapy and there often is not the time to get detailed health histories from the students.

teatree and steam has also caused severe facial dermatitis which then became systemic over the body.¹⁵ Significantly, teatree oil that has oxidised is more likely to cause dermatitis.^{7,19} However, one incident of contact dermatitis from a teatree hand wash was not related to the teatree at all.¹⁸ As experienced in the second case study, exposure to airborne essential oil molecules also poses a risk. One person, who regularly used over 40 essential oils in a burner in the home developed severe dermatitis all over his body which required hospitalisation.²²

Other common essential oils or constituents that have been implicated in causing allergic reactions include carnosol, found in rosemary oil;^{8,17} Roman chamomile (*Anthemis nobilis*);⁹ and orange and lemon essential oils, probably due to the D-limonene.¹² Limonene is found in many skin and home care products and is a known allergen at 2% concentration. This compares with some whole essential oils which have caused allergies at between 2% and 5% concentration, including ylang ylang, sandalwood, rose oil, patchouli, galbanum and jasmine.¹⁶

Conclusion

Whilst the above two cases studies are the only serious incidences in over 10yr of teaching aromatherapy, they certainly highlight the need for all aromatherapists to remain vigilant. Different countries and different institutions will have varying legal and professional requirements and individuals need to take these into consideration. There appears to be no mandatory requirement to register suspected reactions, however this is potentially something professional bodies could consider. The author has experienced other less serious reactions in the learning environment. These range from headaches and nausea (geranium oil) to skin reactions (lavender oil of dubious quality) and hay fever like symptoms (unknown oils). It is certainly prudent for aromatherapists to have strategies to minimise the risk of reactions.¹⁰

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