



# Occupational allergic contact dermatitis in Thai spa therapists

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Occupational allergic contact dermatitis (ACD) in spa therapists is common, and can result in sick leave, change of occupation, and impaired quality of life.<sup>1</sup> Spa products frequently contain fragrance chemicals that are added to obtain the desired aroma.<sup>2</sup> Although it is recognized that sensitization to fragrance chemicals can occur in aromatherapists,<sup>3-5</sup> the aim of this study was to determine the prevalence of contact dermatitis in spa therapists and to find common related allergens.

## MATERIALS AND METHODS

A prospective study was conducted with five Thai traditional spas and the Occupational and Contact Dermatitis Clinic, Institute of Dermatology in Bangkok. Between July 2016 and April 2017, a total of 143 consecutive patients with suspected occupational dermatitis were enrolled. All patients were patch tested with 32 allergens in the International baseline series and 42 individual fragrance allergens (AllergEAZE from Brial Allergen, Greven, Germany) were applied on the back using AllergEAZE patch test chamber.

## RESULTS

Of the 143 patients, six were males and 137 were females. The mean age was 42.5 years, and the mean job duration was 7 years. Most of the therapists worked 8 hours per day, 6 days per week. The average number of customers in 1 day was six per one spa therapist. The prevalence of occupational ACD was 45.5%. The sites of dermatitis were typically on the hands and forearms, which are directly exposed to the allergens, and were either symmetrical or asymmetrical. Hand eczema occurred in 55.9% of the patients. We found statistically significant associations of occupational dermatitis ( $P = 0.042$ ), atopic dermatitis ( $P = 0.006$ ) and hand dermatitis ( $P = 0.049$ ) with contact allergy to fragrances (Table 1).

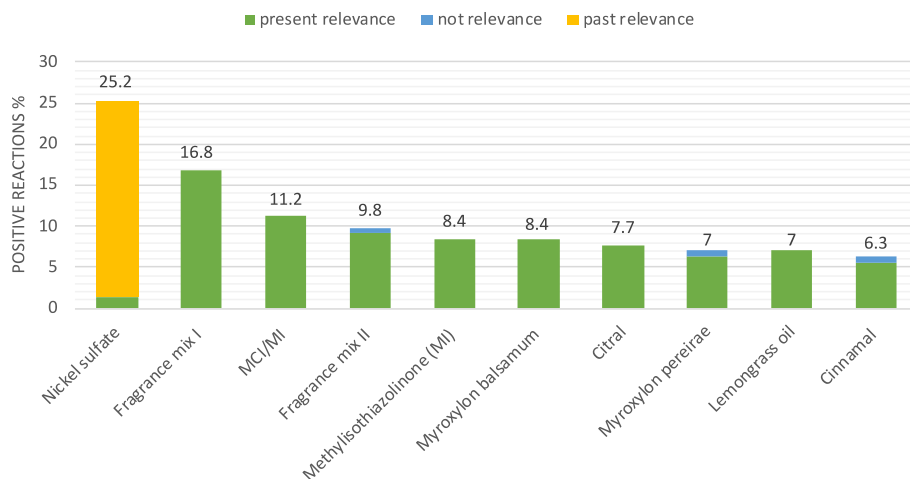
Nickel was the most common positive allergen identified but, in most cases, this was not considered to be of current relevance. The next commonest allergens identified were fragrance mix (FM) I (16.8%), methylchloroisothiazolinone (MCI)/methylisothiazolinone (MI) (11.2%), and FM II (9.8%). Among the individual fragrance chemicals, *Myroxylon balsamum* (tolu balsam), citral, *Myroxylon perirae* (balsam of Peru) and lemongrass oil were the most common

**TABLE 1** The MOAHLFA index in spa therapists

MOAHLFA	Fragrance-positive, n = 39		Fragrance-negative, n = 104		P-value*
	% (n)	95% CI	% (n)	95% CI	
Male	0 (0)	0-9	5.8 (6)	2.1-12.1	0.125
Occupational dermatitis	56.4 (22)	39.6-72.2	37.5 (39)	28.2-47.5	<b>0.042</b>
Atopic dermatitis	30.8 (12)	17-47.6	11.5 (12)	6.1-19.3	<b>0.006</b>
Hand dermatitis	69.2 (27)	52.4-83	51 (53)	41-60.9	<b>0.049</b>
Leg dermatitis	10.3 (4)	2.9-24.2	8.7 (9)	4-15.8	0.767
Face dermatitis	2.6 (1)	0.1-13.5	9.6 (10)	4.7-17	0.159
Age > 40 y	69.2 (27)	52.4-83	58.7 (61)	48.6-68.2	0.247

Abbreviation: CI, confidence interval.

\* $\chi^2$  test;  $P < 0.05$  was regarded as statistically significant; significant  $P$  values in bold.



**FIGURE 1** Positive patch test reactions to baseline series and fragrance series

allergens (Figure 1.) The common products causing fragrance and preservative allergy were massage oils (77.6%), liquid soaps (74.1%), massage balms (67.1%), and creams (66.4%). Patch testing with an individual fragrance series identified five additional cases as compared with patch testing with only the baseline series (65 vs 60 cases).

## DISCUSSION

This study showed a high prevalence of occupational ACD in Thai spa therapists. ACD could also occur in conjunction with irritant contact dermatitis and/or atopic hand eczema. Vejanurug et al<sup>6</sup> reported that cinnamyl alcohol and cinnamal were the most common fragrance allergens among the Thai patch test population; in this study, the most common fragrance allergens were *M. balsamum*, citral, *M. pereirae*, and lemongrass oil. A popular spa preparation is the traditional balm containing *M. balsamum*. Positive patch test reactions to multiple essential oils were more common in aromatherapists working in luxury hotels. Avoidance of single essential oils could not completely prevent the recurrence of ACD, because several fragrance chemicals could be commonly shared among different essential oils.<sup>3</sup>

## CONCLUSION

Patch testing with a fragrance series in addition to the baseline series should be considered in this population. One avenue to decrease the high prevalence of occupational ACD in spa therapists could be through education, for example, reduction of the amount of repeated

mechanical irritation, avoidance of direct contact with culprit allergen, and the use of barrier creams.

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## REFERENCES

- Hutchings CV, Shum KW, Gawkrödger DJ. Occupational contact dermatitis has an appreciable impact on quality of life. *Contact Dermatitis*. 2001;45:17-20.
- Bråred Christensson J, Hagvall L, Karlberg A-T. Fragrance allergens, overview with a focus on recent developments and understanding of abiotic and biotic activation. *Cosmetics*. 2016;3:19.
- Narelle B, Bruce T, Marius R. Allergic contact dermatitis following exposure to essential oils. *Australas J Dermatol*. 2002;43:211-213.
- Cockayne SE, Gawkrödger DJ. Occupational contact dermatitis in an aromatherapist. *Contact Dermatitis*. 1997;37:306.
- Selvaag E, Holm JØ, Thune P. Allergic contact dermatitis in an aroma therapist with multiple sensitizations to essential oils. *Contact Dermatitis*. 1995;33:354-355.
- Vejanurug P, Tresukosol P, Sajjachareonpong P, Puangpet P. Fragrance allergy could be missed without patch testing with 26 individual fragrance allergens. *Contact Dermatitis*. 2016;74:230-235.

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