

Letter to the Editor

Should *Evernia furfuracea* be included in a baseline screening series of contact allergens?

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To the Editor,

Screening for fragrance allergy by patch testing has depended on mixtures. Initially, a natural mixture of fragrance chemicals, *Myroxylon pereirae* (balsam of Peru), was used for screening, followed by fragrance mix I and then fragrance mix II. A single fragrance chemical, hydroxyisohexyl 3-cyclohexene carboxaldehyde, was added. Here, we discuss whether a further fragrance chemical, *Evernia furfuracea* extract, should be included in the baseline series.

What is *E. furfuracea* (tree moss)?

E. furfuracea is a moss whose extract is obtained by the use of solvents. The extract is used in the fragrance industry, and has been identified as a contact allergen. *E. furfuracea* grows mainly on pine and fir trees. Owing to its growth on conifers and the collection process, which results in the processing of significant quantities of bark, some co-reactivity with colophonium can be expected. A (non-binding) fragrance industry standard exists (43rd amendment 2011) indicating that 'tree moss extracts shall not contain more than 0.8% of dihydroabietic acid (a major allergenic component of colophonium)' (1).

The same amendment also indicates that 'oak moss extracts (*Evernia prunastri*) must not contain added tree moss (*Evernia furfuracea*)'. Before this standard was set, 'tree moss' was deliberately added to many of the oak moss 'absolutes', for cost reasons.

How commonly is it used in toiletries and household products?

Buckley surveyed the frequency of use of the 26 individually labelled fragrance chemicals in different consumer products (2). She found *E. furfuracea* extract in one of 70 (1.4%) personal care products, five of 59 (8.4%) men's products, none of 57 household products, three of 44

(6.8%) fine fragrances for women, none of 17 deodorants, and none of 14 dental and oral hygiene products (2). A survey of 4 991 products in Germany showed that *E. furfuracea* extract was present in 7.1% of perfumes, 3.3% of deodorants, 0.8% of creams, and 0.5% of bath and shower products (3). Although allergic contact dermatitis caused by lichens has been described in gardeners and farmers (4), we are unaware of reported cases of occupational contact dermatitis diagnosed by positive patch test reactions to *E. furfuracea* extract.

What are the prevalence rates of *E. furfuracea* contact allergy reported from patch test clinics?

E. furfuracea extract is usually tested 1% pet. Reports on the prevalence of *E. furfuracea* contact allergy from patch test clinics consistently report a prevalence of > 1%. van Oosten et al. reported a prevalence of contact allergy to *E. furfuracea* extract of 2.5%, and that it was the second commonest single fragrance chemical (5). In a large study of > 40 000 patients, a prevalence of 6.0% was reported, with *E. furfuracea* extract being the second commonest single fragrance chemical (6). Heisterberg et al. found *E. furfuracea* extract to be the commonest single fragrance allergen, with a prevalence of 3.3% (1508 patients tested) (7). Mann et al. found *E. furfuracea* allergy in 2.3% of 1951 patients tested (8). A recent study from Thailand showed a prevalence of 2.6% in a contact dermatitis clinic (9).

E. furfuracea extract is consistently among the top individual fragrance allergens found on testing the 26 individual fragrances named in ingredient labelling, but the only one of the top three in any of the cited reports that is not contained in the baseline series fragrance mixes.

Why not target just patients with a history of fragrance allergy?

A history of reacting to fragranced products is unreliable for predicting contact allergy to fragrances such as *E. furfuracea* extract. In a recent survey, only 14% of patients

with contact allergy to *E. furfuracea* gave a positive history of reacting to fragrances prior to patch testing (S Thaiwat, in preparation).

Because of the cross-contamination described above, together with *E. furfuracea* and *E. prunastri* sharing some allergens, will the inclusion of *E. prunastri* extract (contained in fragrance mix I) and colophonium in the baseline series 'pick up' the majority of cases of *E. furfuracea* allergy?

Uter et al. addressed this issue. Of 193 patients allergic to *E. furfuracea*, only 81 (41%) also reacted to *E. prunastri*. Of 173 patients allergic to *E. furfuracea*, 15 (8.6%) also showed positive patch test reactions to colophonium. The majority of cases of contact allergy to *E. furfuracea* are not detected by screening with either *E. prunastri* extract and/or colophonium (1).

Comment

It is becoming increasingly evident that screening for contact allergy to fragrances with the baseline series fra-

grance mixes has low sensitivity (7), and that more individual fragrance chemical allergens need to be added alongside the fragrance mixes. *E. furfuracea* extract would appear to be a common contact allergen, although its use is somewhat limited in consumer products. We propose, with qualification, that it should be one of the individual fragrance chemicals included in baseline series of contact allergens.

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