

**Title:** Allergic contact dermatitis due to over-the-counter antifungal nail brush: is resacetophenone an under-recognized allergen?

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To the editor,

Resacetophenone is a plant metabolite and acetophenone derivative with bleaching, antioxidant and skin conditioning properties. (1) In its pure form, it is a well-known irritant. Recently, resacetophenone has also been described as a skin sensitizer (2,3). The very few cases described to date all presented with toe dermatitis after the application of antifungal preparations that contained resacetophenone among its components. We herein present another case of resacetophenone allergic contact dermatitis due to an antifungal nail brush.

A 36-year-old woman presented a severe periungual eruption after one week's use of an antifungal nail preparation. The eruption consisted of a strong erythematous reaction with crusting and vesicles that affected the periungual skin of the toes of both feet (Fig 1A). The anamnesis revealed that, due to a discrete nail dystrophy in both toes, the patient was advised to use an over-the-counter nail preparation twice a day for one month. The nail brush composition included ethyl lactate, aqua, glycerin, lactic acid, citric acid and resacetophenone. Patch testing with the Spanish and European basal series, and with the in-house prepared resacetophenone at 0.1 and 1% available from prior research, as well as semi-open test with the product "as is" were performed. The readings revealed clear-cut positive reactions (+++) on day(D)2 and D4 to both the product as is and to resacetophenone 0.1 and 1% petrolatum (Figure 1B). In addition, patch tests also revealed positive nickel sulfate readings (++) on D2 and 4.

To the best of our knowledge, until September 2022, no reports of allergic contact dermatitis to resacetophenone had been published. However, in the past 6 months, two different publications in different geographical areas (Spain and the United Kingdom), reported three cases, which highlighted the need to be aware of this allergen.

In clinical practice, suspicion of resacetophenone contact allergy seems to be in the context of topical antifungals and periungual dermatitis. In cosmetic databases, resacetophenone seems to be limited only to nail topical products (4). Therefore, if periungual (either in hands or feet) or finger/toe dermatitis is present and attributed to any topical product (including over-the-counter preparations), it is mandatory to study the product and assess the presence of resacetophenone. All the cases presented to date have been diagnosed with resacetophenone at 0.1 or 1% petrolatum (3). Despite the fact that it is chemically related to other compounds (resorcinol, phenylthyl resorcinol), the degree of cross-reactivity is unknown. In our case, no patch testing with resorcinol or other derivatives were performed.

The aim of this letter is to highlight and raise awareness on a possible increase in the detection of cases of contact allergy to a newly-described allergen present in topical nail products. When studying the components of the patients' own products, the presence of resacetophenone should not be ignored and should be studied. In conclusion, despite its rarity, resacetophenone contact allergy needs to be addressed in order to assess its real frequency, detect undiagnosed cases and clarify its exact presence in over-the-counter and/or cosmetic products.

## FIGURES

**Figure 1. A. Clinical picture of toe dermatitis after initiation of topical steroids. The control revealed still important erythema and desquamation. B. Positive patch testing for resacetophenone (++++) on D4.**

## REFERENCES

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