

Occupational confetti-like phytophotodermatitis due to lime fruit: Report of two cases

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CASE REPORTS

A 27-year-old nonatopic woman presented with a hyperpigmented exanthematic rash that had developed about 2 weeks before. Brown-colored lenticular confetti-like macules with well-defined borders were located mostly around her navel and lower abdomen (Figure 1A). A previous diagnosis of irritant contact dermatitis had been made and therapy with topical corticosteroid had not given any results.

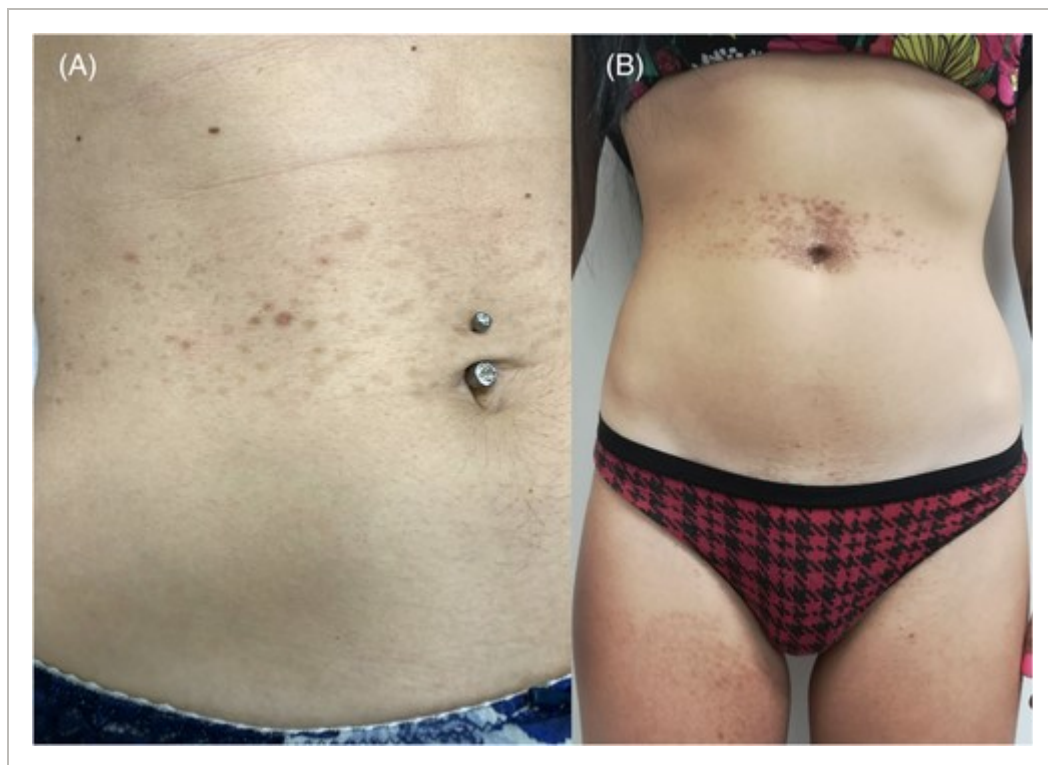


FIGURE 1

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(A) 27-year-old woman with lime phytophotodermatitis around her navel and lower abdomen. (B) A 25-year old woman with linear lime's phytophotodermatitis on her abdomen and upper thighs

A week later a 25-year-old nonatopic woman presented with a similar dermatitis on her abdomen and upper thighs (Figure 1B). She denied any history of previous allergies or rashes.

Both patients had recently started working during the weekends as bartenders in the same chiringuito on the beach, and part of their job consisted of cutting limes in half for at least 2 hours a day.

We performed patch tests with the SIDAPA (Società Italiana di Dermatologia Allergologica Professionale e Ambientale) baseline series (F.I.R.M.A., Florence, Italy). Patch-test chambers (Van der Bend, Brielle, The Netherlands) were applied on the upper part of the patients' backs. Patch tests with lime juice and lime peel were also performed. The reading on day (D) 2 and D4 according to the Italian guidelines¹ showed no reaction to any contact allergen or parts of the lime fruit. In addition, we rubbed a portion of lime peel in the right antecubital fossa and squeezed a few drops of lime juice in the left antecubital fossa. We then asked the patients to walk outside in the sun without any cover on both arms for 30 minutes. A mild erythematous reaction on D1, which started to become pigmented on D3 (Figure 2), was observed in the right antecubital fossa where only lime peel had been applied. A diagnosis of occupational confetti-like phytophotodermatitis due to lime fruit was made in both patients.

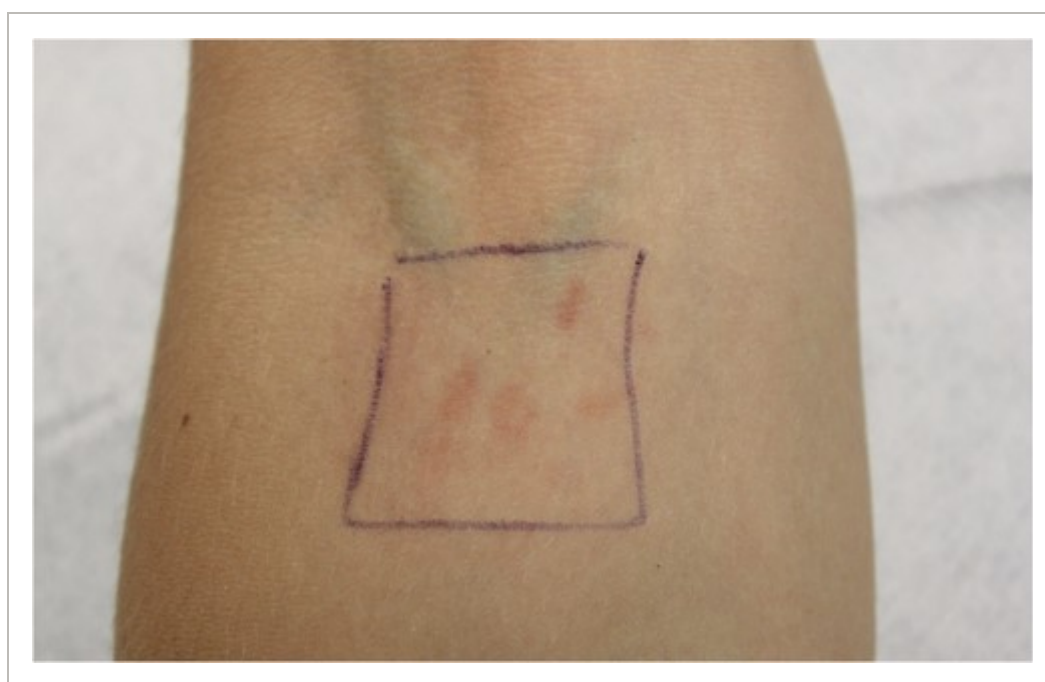


FIGURE 2

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Positive reaction to lime peel in Patient B on day 3

DISCUSSION

Citrus aurantiifolia is an evergreen tree that is classified in the Rutaceae family, genus *Citrus*. The fruit, called lime, is used worldwide in the cooking industry, but also in the pharmaceutical and cosmetic industries. The fruit contains various active substances, among them there are coumarins and furocoumarins, which are the well known agents responsible for phytophotodermatitis.²

We report two cases of lime occupational phytophotodermatitis presenting with hyperpigmentation without prior relevant signs of inflammation such as erythema, edema, or blisters. Both patients, in fact, did not report significant previous inflammatory reactions. Isolated hyperpigmentation is a well-known clinical feature of lime's phytophotodermatitis.³ Furocoumarins levels are higher in peel than in the flesh of citrus fruit.⁴ In fact in our patients the only positive reaction was found at the site where we had rubbed lime peel, whereas lime juice did not produce any cutaneous reaction.

Most reported cases of cutaneous reaction to lime fruit are phytophotodermatitis, whereas a few cases of allergic contact dermatitis (ACD) and protein contact dermatitis are known.² D-Limonene is considered to be the main allergen responsible for ACD, whereas geraniol and citral have been identified as minor allergens.^{5, 6} Fragrance mix 1, fragrance mix 2, and *myroxylon pereirae* from SIDAPA baseline series all contain allergens present in lime (ie, geraniol, citral, coumarin, and so on). Some authors suggest that testing limonene hydroperoxides 0.3% and 0.2% in pet. could detect more sensitizations than commonly used allergens.⁷

Clinicians should be aware of all the possible cutaneous reactions to lime fruit, and further studies are needed to define the real epidemiology of the different types of cutaneous reactions to lime fruit.

CONFLICT OF INTEREST

The authors declare no form of support. The authors declare no funding and no conflicts of interest directly related to the work being submitted.

AUTHOR CONTRIBUTIONS

Monica Corazza: Conceptualization (lead); data curation (lead); formal analysis (lead); investigation (lead); methodology (lead); writing – review and editing (lead). **Cecilia Schenetti:** Conceptualization (equal); data curation (equal); formal analysis (equal); investigation (equal); writing – original draft (lead); writing – review and editing (supporting). **Natale Schettini:** Data curation (supporting); investigation (supporting). **Lucrezia Pacetti:** Data curation (supporting); investigation (supporting). **Alberto Monti:** Data curation (supporting); investigation (supporting). **Alessandro Borghi:** Formal analysis (equal); investigation (equal); supervision (lead); validation (equal); writing – review and editing (supporting).

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