

Allergenic ingredients in commercial topical cannabinoid preparations



To the Editor: There is growing interest in cannabinoids in dermatology.¹ While therapeutic applications are under study, over-the-counter topical cannabinoids have been promoted for use in skin conditions on the basis of limited evidence.² The risk of allergic contact dermatitis posed by these products is unclear. We sought to characterize the formulations and allergenic potential of topical cannabinoids.

In November 2018, we used the cannabis directory Weedmaps.com to search catalogs of 36 dispensaries in Los Angeles, California, for topical cannabinoids, then visited brand websites. We included leave-on products with ingredients listed or obtainable from manufacturer. Products with missing or incomplete ingredients were excluded. We recorded vehicle types and ingredients to assess for the presence of North American Contact Dermatitis Group (NACDG) 2015-2016 screening series allergens³ and known botanical allergens.^{4,5} To reduce redundancy, we combined similar/related botanical ingredients.

The final data set contained 103 products from 30 brands. The most common vehicles were creams (17%), lip balms (14%), oils (11%), lotions (9%), and roll-ons (9%); ointments were rare (1%). All products had at least 1 cannabis-derived ingredient, eg, cannabidiol, cannabis oil, or hemp extract. One or

more NACDG allergens were found in 84% of the products; 51% had 1-2 allergens, 17% had 3-4, and 17% had ≥ 5 (Fig 1). The most common potential allergens were tocopherol (40%), peppermint oil and/or menthol (36%), lavender oil (32%), and fragrance mix (25%). No products contained formaldehyde releasers, parabens, methylchloroisothiazolinone/methylisothiazolinone (MCI/MI), or MI. Nearly all (96%) contained ≥ 1 botanically derived ingredient other than a cannabinoid (mean 7). Of the most common botanicals (Table I), over half were known allergens,^{4,5} prominently peppermint and/or menthol (36%) and lavender (32%).

Here, we demonstrate that topical cannabinoids are available in a variety of vehicles. Creams and lotions greatly outnumbered ointments, the latter often preferred by dermatologists but not by patients.⁶ Only 16% of products were free of NACDG allergens, similar to the previously reported figure of 12% for best-selling moisturizers.⁶ In that study, 31% of products had 1-2 allergens, and 56% had ≥ 3 . Parabens and formaldehyde releasers were among the top potential allergens in moisturizers, while MCI/MI and MI were less frequent; whereas for topical cannabinoids, these allergens were entirely absent. Tocopherol and fragrance were common in both cohorts. Topical cannabinoids often contained botanical allergens, notably peppermint and lavender in around one-third of products. By contrast, Xu et al⁶ found lavender in <5% of moisturizers and peppermint in none. These findings

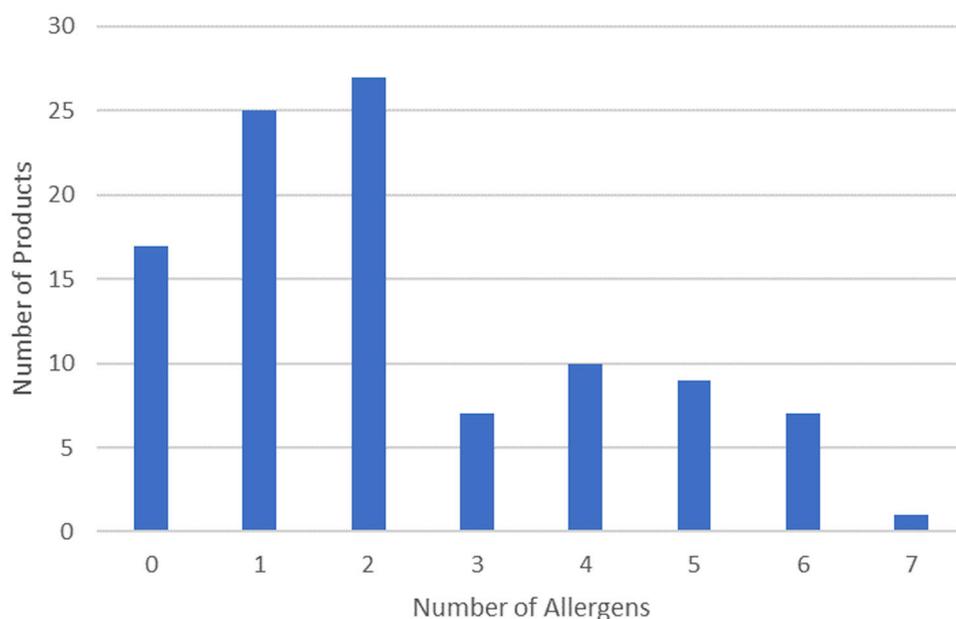


Fig 1. Allergen distribution from the North American Contact Dermatitis Group 2015-2016 screening series in topical cannabinoids.

Table I. Botanical ingredients found in >10% of topical cannabinoids

Ingredient	Frequency, n (%)
Coconut	52 (51)
Peppermint and/or menthol*	37 (36)
Lavender*	33 (32)
Beeswax	30 (29)
Shea	27 (26)
Sunflower	25 (24)
Aloe vera*	23 (22)
Arnica*	18 (18)
Eucalyptus*	17 (17)
Rosemary*	17 (17)
Ginger*	15 (15)
Almond	14 (14)
Joboba	14 (14)
Tea tree*	14 (14)
Avocado	13 (13)
Chamomile*	13 (13)
Marigold*	11 (11)
Cocoa	11 (11)
Orange*	11 (11)
Argan	10 (10)
Frankincense*	10 (10)
Grapefruit*	10 (10)
Tamanu	10 (10)

Oils, extracts, infusions, butters, and esters were included in the ingredient list. Similar/related botanicals were combined to reduce redundancy (eg, orange with sweet orange oil and peppermint oil with its main component, menthol).

*Botanical allergen.^{4,5}

might reflect cannabis consumer preference for nongreasy vehicles featuring natural/organic ingredients.

Cannabis has been reported to cause immunologic contact urticaria⁷ and airborne allergic contact dermatitis.⁸ Commercial preparations containing cannabinoid derivatives also contain a host of cannabinoid-unrelated allergens. However, inclusion of an allergen in the NACDG screening series does not necessarily imply high clinical relevance; the most recent prevalence of patch test positivity was <1% for tocopherol, parabens, and peppermint and lavender oils.³ The generalizability of our findings is limited by geographic restriction of the sample.

Cannabinoids might have a future role to play in dermatology.¹ As evidence accumulates, consumers and dermatologists should be aware of the potential allergenicity of common ingredients, particularly botanicals, in topical cannabinoids.

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Brandon L. Adler, MD, and Vincent A. DeLeo, MD

From the Department of Dermatology, Keck School of Medicine, University of Southern California, Los Angeles, California

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Correspondence to: Brandon L. Adler, MD, 1441 Eastlake Ave, Ezralow Tower, Ste 5301, Los Angeles, CA 90033

E-mail: brandon.adler@med.usc.edu

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Real-world drug usage survival of spironolactone versus oral antibiotics for the management of female patients with acne



To the Editor: Acne often persists into adulthood, particularly for female patients.¹ For those with persistent moderate-to-severe disease requiring treatment with systemic agents, it is important to identify which options can provide a durable treatment effect over time. Spironolactone is emerging as a potential alternative to oral antibiotics.^{2,3} However, little is known about long-term outcomes with spironolactone for those who have an initial positive response and how it compares with other alternatives.

To understand the drug usage survival of spironolactone compared with oral antibiotics for acne, we performed a retrospective analysis using OptumInsight Clinformatics DataMart (OptumInsight, Eden Prairie,