

CONTACT POINT

Cheilitis caused by allergic contact dermatitis to cinnamon in chai tea: A case report

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CASE REPORT

Cinnamon is derived from the bark of cinnamon tree, with cinnamic aldehyde being the main constituent as well as trans-cinnamic acid and cinnamic alcohol. Allergic contact dermatitis (ACD) to cinnamon is rare, usually presenting as a localized dermatitis; however, systemic dermatitis¹ and urticaria² have been reported.

We report an unusual case of ACD following daily ingestion of cinnamon in a chai-tea drink in a 38-year-old female with an 18-month history of persistent cheilitis affecting both lips. Past medical history included allergic rhinitis. Before her ACD, she had been diagnosed with actinic cheilitis; however, this had cleared with a course of Efudix cream. There was no improvement with cessation of makeup and lip products but improvement with daily tacrolimus ointment 0.1% without full resolution, with her cheilitis returning to full severity within 1–2 days of temporary cessation. On initial review, her lips were mildly dry with no active dermatitis.

The patient was patch tested to the Australian baseline series (ABS), cosmetic, fragrance, cheilitis and dental series as well as the patient's own products.

Reactions are summarized in Table 1.

After patch testing, the patient admitted to switching her regular daily coffee to chai tea (Prana Chai Original Blend and Raja Chai) immediately before development of her cheilitis. Both products contained significant amounts of cinnamon.

Subsequently, the patient avoided all chai tea and cinnamon-containing products resulting in complete resolution of her cheilitis and was able to cease tacrolimus ointment. She later reported a flare-up after consuming a raisin bread containing high amounts of cinnamon.

DISCUSSION

ACD to cinnamon was diagnosed given the highly suggestive temporal history, patch testing results and resolution of symptoms with allergen avoidance. Additionally, the recurrence of cheilitis following ingestion of cinnamon confirmed the diagnosis. To our knowledge, there have been no previous reports of ACD caused by chai tea.

Cinnamic aldehyde and cinnamic alcohol, constituents of cinnamon, are components of fragrance mix I, a patch test allergen used in the ABS, and are a common cause of fragrance allergy. Data from our centre from January 2000 to August 2022 show that the number of reactions to cinnamyl alcohol and cinnamic aldehyde is common (5.1% and 3.0%, respectively) and often judged relevant (51% and 62%, respectively).

ACD from cinnamon may be a result of ingestion of products containing the allergen,^{1,3} but has also been reported in products such as toothpaste,⁴ vaginal suppositories⁵ as well as odour neutralizing agents.⁶ Cinnamon has frequently been reported as an occupational

TABLE 1 Summary of patch test reactions

Allergen	Day 2	Day 4	Relevance
Fragrance Mix I (8.0% pet.)	–	++	R
Hydroperoxides of Limonene (0.3% pet.)	–	+	U
Cinnamic alcohol (2.0% pet.)	–	+	R
Cinnamic aldehyde (1.0% pet.)	–	+	R

Note: – Negative reaction, + weak positive reaction, ++ strong positive reaction, Pet. Petrolatum, R – Relevant; U – Unknown relevance.

allergen in food industry workers such as bakers⁷ as well as workers handling coffee.⁸

In conclusion, this is a rarely reported case of cheilitis caused by chai tea, which may represent a potential emerging source of cinnamon allergy.

AUTHOR CONTRIBUTIONS

Kajal Patel: Writing – original draft; data curation. **Matthew Howard:** Conceptualization; investigation; methodology; data curation; writing – review and editing. **Bruce Tate:** Conceptualization; investigation; methodology; supervision; writing – review and editing.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

ETHICS STATEMENT

Written informed consent was gained.

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