
Anaphylaxis Due to Senna (*Cassia angustifolia*)

Irazábal B¹, Sánchez de Vicente J¹, Galán C¹, Seguro A¹, Seras Y¹, García-Lirio E¹, Martínez Antón MD¹, Bartolomé B², Jáuregui I¹

¹Allergy Service, Hospital Universitario Cruces, Baracaldo, Spain

²Roxall R&D Department, Zamudio, Spain

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Senna (*Cassia angustifolia*) is a scrub plant belonging to the Fabaceae family that is widely used as a medicinal plant owing to its laxative effects, which are associated with sennosides. In addition, because it contains anthraquinones, it is also used as a coloring agent in hair dyes [1]. Senna is a frequent component of herbal teas marketed for weight loss.

We report the case of a 19-year-old man who presented with rhinoconjunctivitis, dyspnea, disfiguring facial edema, and disseminated hives 10 minutes after eating rice with clams, fried eggs, lettuce, and yoghurt, followed by an infusion (Delgaxan Plus, Pompadour Ibérica) containing artichoke, horsetail, peppermint, and senna. No other drugs or cofactors were associated with the episode. The patient recovered promptly with intramuscular epinephrine and intravenous methylprednisolone and dexchlorpheniramine.

The allergology work-up consisted of the following: (1) Skin prick tests with all the foods involved, common inhalant allergens, and vegetal pan-allergens such as natural profilin/Pho d 2 and peach LTP/Pru p 3, as well as natural latex and *Anisakis* extracts; (2) Skin tests (prick-prick) with Delgaxan infusion and its separate components (artichoke, horsetail, mint, and *Cassia* leaves); (3) complete blood count, biochemistry, tryptase, total and specific IgE, and C3-C4; (4) oral challenge tests with the food ingested and the components of the infusion; (5) SDS-PAGE immunoblotting with extracts from *Cassia* leaf and the Delgaxan infusion. Informed consent was obtained from the patient for all in vitro and in vivo tests.

The skin test results were positive for Delgaxan and senna leaf extracts in the patient and negative in 22 controls (healthy or atopic). Skin tests were negative to artichoke, horsetail, and peppermint, as well as to egg and milk proteins, rice, clam, mussel, shrimp, codfish, *Anisakis*, lettuce, wheat, corn, lentil, peanut, walnut, soy, peach, kiwi, latex, and native profilin and LTP extracts. Prick tests with inhalant allergens were positive to *Dermatophagoides* species and negative to storage mites, molds, cat and dog dander, and a variety of pollens, including Fagales. The patient subsequently tolerated ingestion of rice, clams, egg, and dairy products, as well as artichoke, horsetail, and peppermint.

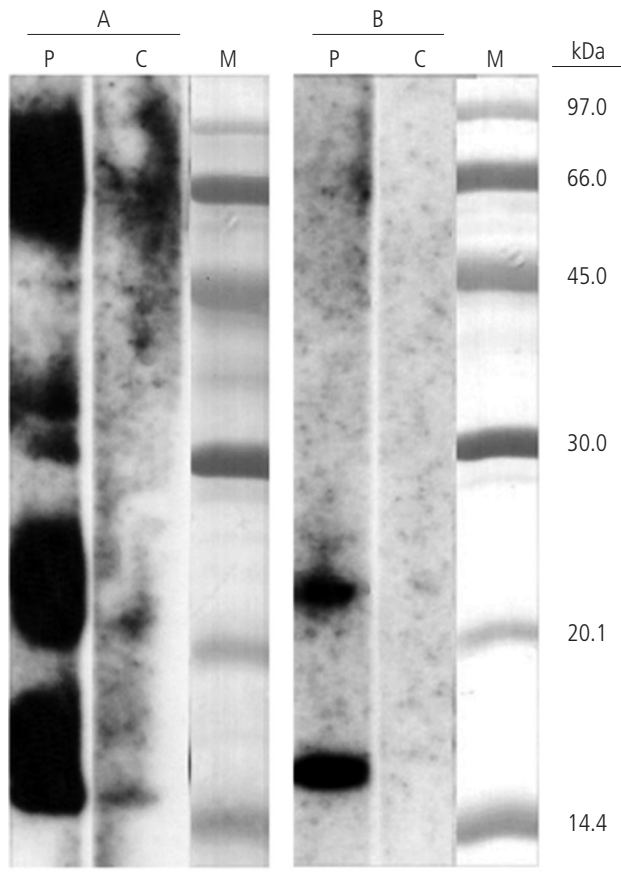


Figure. SDS-PAGE immunoblotting. A, *Cassia angustifolia* leaf extract. B, Infusion powder extract. Lane P, patient serum; Lane C, control serum (pool of sera from nonatopic individuals); Lane M, molecular mass standard.

The laboratory results were normal. Total IgE was 118 kU/L. Specific IgE to mint, Bet v 1, Bet v 2, Pru p 3, Tri a 14, and α -gal was <0.1 kU_A/L. Immunoblotting showed IgE-binding bands of 66, 23, and 16.5 kDa in the *Cassia* extract and bands of 23 and 16.5 kDa in the Delgaxan extract (Figure). The patient refused to undergo an oral challenge test with senna.

Very few reactions to senna have been described. In its report on senna, the European Medicines Agency (EMA) Committee on Herbal Medicine Products [2] mentions hypersensitivity reactions (pruritus, urticaria) but does not provide specific associated references. Isolated cases of occupational allergy (asthma and rhinoconjunctivitis) have been reported in workers in the phytopharmaceutical industry [1,3-5]. In one such case, the patients tolerated intake of laxative senna infusions [5], while in others, eventual oral tolerance is unknown. In 2 of these reports, several IgE-binding bands were detected by SDS-PAGE immunoblotting with *Cassia* leaves [1,4] and powder extracts [1], mainly in the range between 16 kDa and 28 kDa. Two of the bands detected with the patient's serum in the present report have molecular weights similar to those previously reported by Helin et al [4], but not as similar to those reported by Carneiro-Leão et al [1]. Furthermore, 11 IgE-reactive proteins from *Cassia siamea*

pollen have also been identified in the range between 181 kDa and <29 kDa [6].

C. angustifolia belongs to the Fabaceae family, which includes legumes ingested regularly in the Mediterranean diet. However, in the present case, there was no serum cross-reactive IgE among proteins from senna and edible legumes: skin tests were negative, and the patient habitually tolerated lentils, chickpeas, and peas. Thus, the eventual implication of storage proteins seems very unlikely; in fact, these proteins are specific to seed tissue and are not usually expressed in plant leaves. Moreover, since the test results for profilins were negative in the present case, we ruled out the possibility that the 16.5-kDa band detected in the *C. angustifolia* extract corresponded to this protein family. The same can be said for PR-10 proteins, because the patient's test results were negative for Fagales pollens and Bet v 1.

Interestingly, the IgE band with the highest molecular weight observed in the senna leaf extract was not detected in the Delgaxan infusion extract; therefore, the 2 persisting lower-weight bands weight seem to be the cause of anaphylaxis. We think that the senna 66-kDa band might correspond to an aggregate of smaller IgE-binding proteins that do not appear in the Delgaxan extract, either because of a lower concentration of these proteins in the extract or the effect of heating or other eventual processes during manufacture.

In summary, we report an anaphylactic reaction due to *C. angustifolia* contained in Delgaxan Plus infusion, hitherto considered "innocent" by the patient. The etiology was demonstrated by the following: (1) the positive prick-prick test results with *Cassia* leaf and the multitherbal preparation in the patient and the negative results in 22 controls; and (2) IgE-binding bands of the same molecular weight detected in the extracts from *Cassia* leaf and Delgaxan infusion. To our knowledge, this is the first report of an anaphylactic reaction after ingestion of senna, since all other reported cases involve professional allergy resulting from inhalation of this plant in work settings. Moreover, in at least 1 of these cases, the patient naturally tolerated senna infusions and laxatives [4]. Sensitization via inhalation or ingestion might occur through different proteins. In addition, as is the case with cereal flours, the same protein might cause allergy by inhalation in a person who tolerates ingestion, and vice versa, eg, the wheat LTP Tri a 19 in baker's asthma and in some patients with food allergy to wheat.

One of the objectives of this case is to highlight the growing consumption of apparently harmless natural herbs and dietary supplements in the context of complementary medicine [7]. Despite the documented frequency of toxic or immunologic reactions and drug interactions [8], these products are often forgotten in the clinical history, even by allergists [9]. As usual, appropriate history taking can lead to a more accurate diagnosis and prevent future anaphylactic reactions.

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Conflicts of Interest

The authors declare that they have no conflicts of interest.

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Begoña Irazábal

Allergy Service
Hospital Universitario Cruces
48903 Cruces-Baracaldo, Spain
E-mail: mariabegona.irazabaldiez@osakidetza.eus