Modulation of peanut allergy upon submitting peanuts to autoclaving assessed by Skin Prick test: Ara h 9 reactivity abolishment

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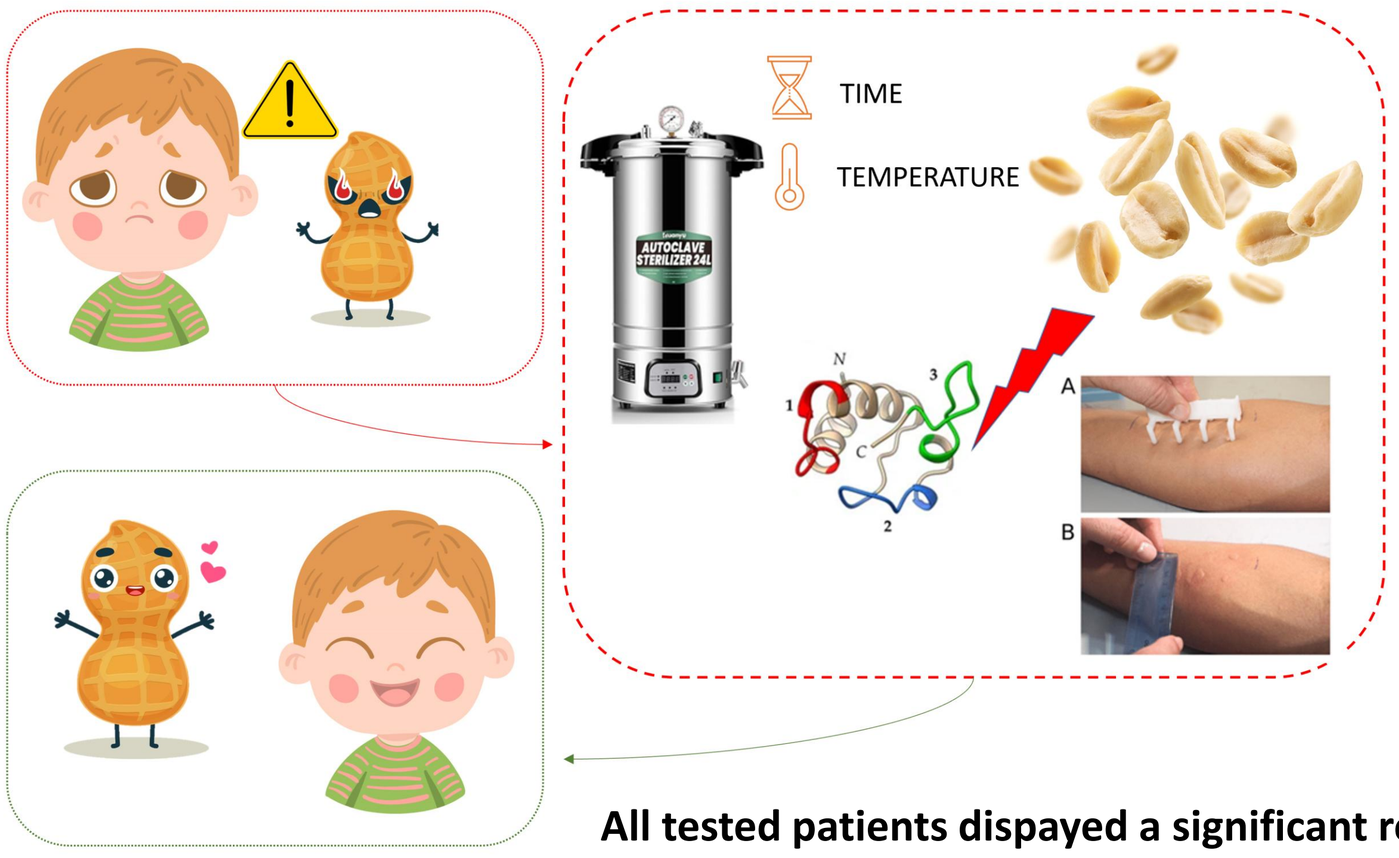


- Patients allergic to peanuts are usually advised to avoid any trace of peanuts in their daily life to avoid life threatening reactions.
- Technological treatments have been investigated in order to deliver a final hypoallergenic food to be tolerated by allergic consumers.
- In the present paper we submitted raw penuts to standardized autoclaving scheme and after to characterization of the proteomic profile.
- The most promising processing applied to peanut was tested by skin prick tests on a selected group of allergic infants previously screened by Immuno Solid-phaseAllergy Chip (ISAC).

All tested patients dispayed a significant reduction of reactivity to autoclaved peanut. Results showed that reactivity was abolished in 100% of children allergic to Ara h9!

Introduction

- Peanut allergy represents a prevalent, persistent, and severe food allergy with the dominant Ara h1,2,3 allergens. Ara h 9 is considered a major allergen in the Mediteranean population (ref)
- Technological processing based on enzymatic or physical treatment showed to be promising to decrease penaut allergenicity.
- OFC is the gold standard for allergy diagnosis although skin prick test is considered accurate and economically sounded test that should complemented with Component Resolved Diagnostic for molecular characterization of allergens of patients'sera.

The purpose of the poster

Autoclaving treatment was applied to raw peanuts to generate a product with a diminuished/abolished allergenic potential as ascertained by SPT in 29 infants suffering form peanut allergy and screened by ISAC.

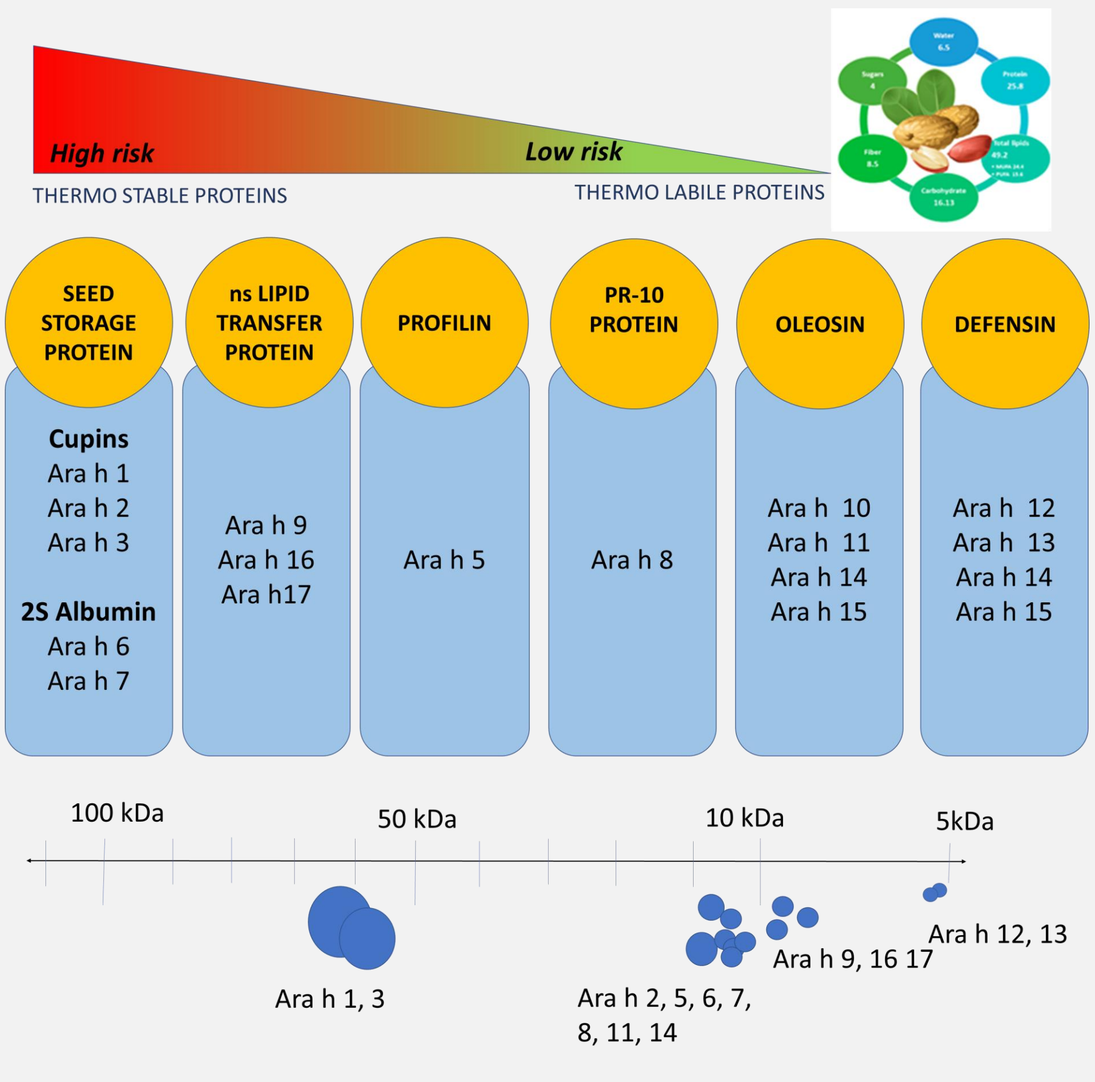


Fig. 1 Major peanut allergens, molecular characteristics and thermo-gastro stability.

Methods

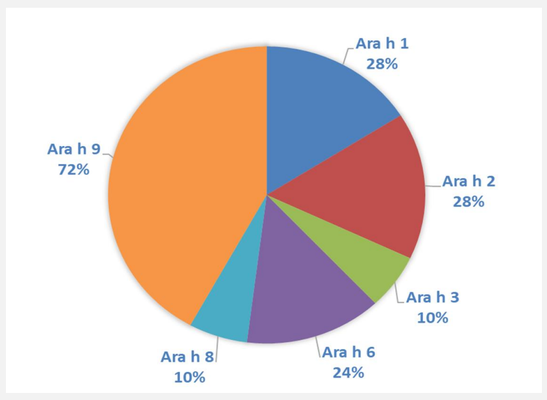


Fig 2. Prevalence of reactivity pattern in a population of 29 allergic infants (aged 4-16) to raw peanuts screened by ISAC.

- A total of 29 young patients allergic to peanuts were recruited in this study and screened by ISAC (fig 2);
- 18 of 29 reactive only to Ara h 9 underwent SP and PbP tests using the processed peanut (fig 3).
- In fig 3 is reported the workflow followed.

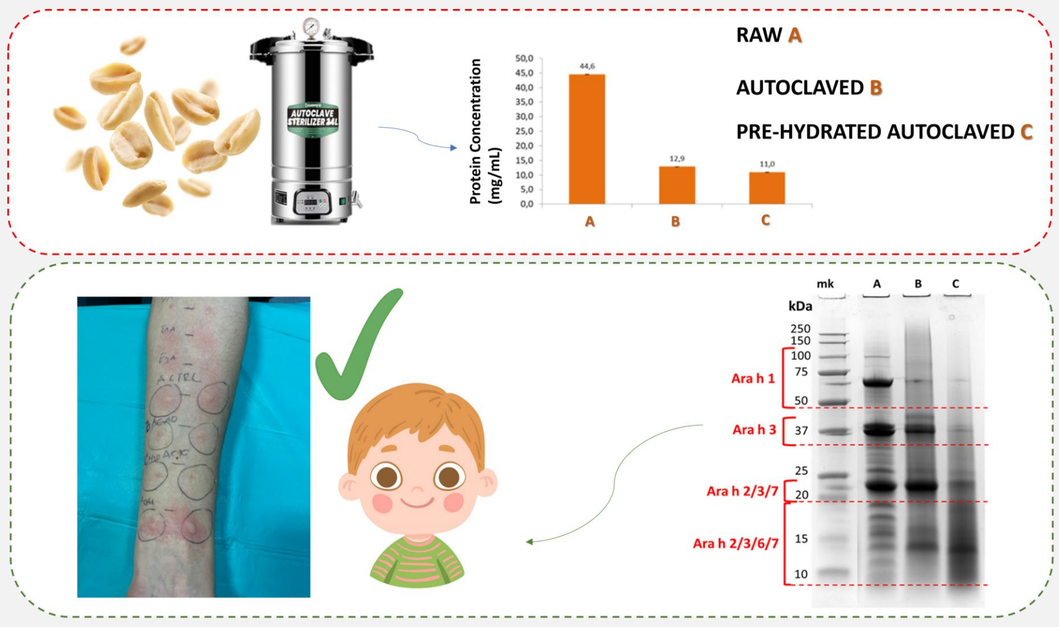
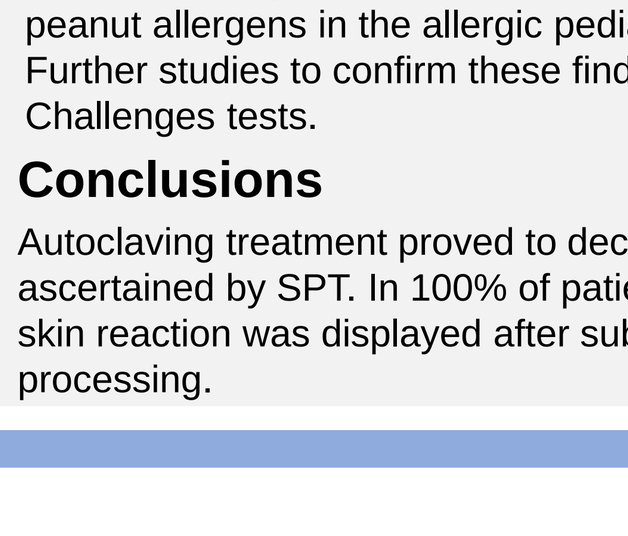


Figure 3. Grinded raw peanuts were 1. extracted 2.processed in autoclave 3. analysed for protein content and allergen profile 4. tested on allergic infants by Skin Prick test.



In fig 4 is depicted the trend with a decrease of reactivity observed in Ara h9 reactive patients after peanut processing

Fig 4. Wheal size by SP Testing 18 allergic infants reactive to Ara h 9. A raw; B autoclaved and C hydrated autoclaved peanuts.

18 /29 allergic infants rectruited in this study proved to be reactive only to Ara h 9

18/18 allergic to Ara h 9 showed no reactivity when SP tested with processed peanut

The autoclaving treatment proved to reduce/abolish reactivity to peanut allergens in the allergic pediatric population tested. Further studies to confirm these findings will include Oral Food Challenges tests.

Conclusions

Autoclaving treatment proved to decrease peanut allergenicity as ascertained by SPT. In 100% of patients reactive to Ara h 9 any skin reaction was displayed after submitting peanut to the processing.

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