Presence of Some Panallergens in Tomatoes from Organic and Classic Cultivations

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INTRODUCTION

Tomato (*Lycopersicon esculentum* Mill.) is probably the most commonly consumed vegetable worldwide. Although it contains a wide array of beneficial health nutrients and antioxidants, it may also cause adverse allergic reactions in sensitized people. Tomato allergy affects from 1.5% to 16% of the population with food allergy and is often accompanied by allergy to pollen and latex [1]. The aim of the study was to investigate the relation between method of tomato cultivation and allergens' content in different tomato varieties.

EXPERIMENTAL METHODS

In this study the profilin, Bet v 1 and LTP analogue content was determined in five tomato varieties (Merkury, Akord, Rumba, Conchita and Picolino) from both organic and conventional farms during three consecutive years. The content of these allergens in tomato samples was determined using an indirect ELISA assay. Statistical calculation were carried out using two-way analysis of variance with the use of the Tukey's test (α=0.05). Pearson regression was calculated with Statgraphics 5.1 software.

RESULTS AND DISCUSSION

The study demonstrated different quantities of profilin, Bet v 1 and LTP analogues in all analyzed tomato varieties across all three years of cultivation. The content of panallergens was, in many cases, higher in organically farmed tomatoes in comparison to conventionally cultivated plants. It was shown, that the allergens' content is the most strongly correlated with the variety and weakly - with the year of crop. The correlation between allergens' content and method of cultivation was found only for the profilin analogues, whose content was higher in organic tomatoes.

CONCLUSIONS

On the basis of the research, organically grown tomatoes offer little advantage over conventionally cultivated varieties in terms of reduced allergen's content.

REFERENCES

1. Foetisch K., Son D.Y., Altmann F., Aulepp H., Conti A., Haustein D., Vieths S., Tomato (*Lycopersicon esculentum*) allergens in pollen-allergic patients. Eur. Food Res. Technol. 213:259–266, 2011.