

New Allergens of Anise and Caraway

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INTRODUCTION

Spices are widely used in cuisine around the world to improve taste and smell values of many dishes and products and are a simple way to achieve good health due to the presence of certain compounds, active substances and even minerals that are needed for our body. Unfortunately they have some disadvantages, as part of their proteins have allergenic properties and contributes to the food hypersensitivity. Allergy to spices makes up approximately 1-4% of all food allergies [1]. Therefore undeclared by manufacturers presence of spices in many dishes and food products pose a threat to health of sensitized persons. The aim of research was identification of potentially allergenic proteins in anise and caraway.

EXPERIMENTAL METHODS

This study analyzed allergenicity of specific spices applied in the food industry (bakery, patisserie) and catering like anise and caraway. The immunoreactivity of given spices was determined by indirect ELISA assay with the use of rabbit and mouse antibodies against specific allergens and sera from people with spice allergy. Next stage was an identification of the most allergenic fraction of spice proteins which reacted with used sera. The methods employed here included SDS-PAGE and immunoblotting. LC-MS/MS technique was applied to identification of allergenic proteins in analyzed spices.

RESULTS AND DISCUSSION

It was verified frequent occurrence of crossreactivity between spice proteins and proteins from other plants. In both analyzed spices there were also found proteins homologous to profilin (PFN), allergen of birch pollen (Bet v 1) and lipid transfer protein (LTP). Moreover there was identified one caraway and anise protein allergenic for patients sensitized to spices, that was recognized as elongation factor α and glyceraldehydes-3-phosphate dehydrogenase, respectively.

CONCLUSIONS

The occurrence of proteins showing high homology to Bet v 1, profilin and LTP in anise and caraway suggests that they may be potentially dangerous for patients sensitized to tree pollens and/or some vegetables and fruits.

REFERENCES

1. Taraszewska A., Jarosz M., Ziola a alergia pokarmowa: 52-66, Warszawa, 2006.