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BOOK OF ABSTRACTS

INFLUENCE OF DRYING TREATMENT ON PHYSICAL PROPERTIES OF PUMPKIN

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INTRODUCTION

Pumpkin is widely used in soups, sauces, packed food and desserts. Its colour, shape, size, texture and appearance varies widely, according to species. Pumpkins are a good source of carotene, water-soluble vitamins and amino acids.

Drying is important for preservation in industrial and agricultural applications. However, the food may be exposed to temperatures that have an adverse effect on quality. Some properties that are appreciated by consumers are visual appearance (including colour), taste, odour and texture. Instrumental texture profile analysis (TPA) is one of the methods to determine the texture by simulating or imitating the repeated biting or chewing of a food.

METHODOLOGY

The present work evaluates the effect of different dryings on some physical properties of pumpkin, namely colour attributes and textural properties. The drying treatments used were convective air drying in a tunnel and a chamber at different temperatures, and freeze-drying.

The colour was determined using a colorimeter. The CIELab system was used: L*=brightness (0-black, 100-white), a*=green-red balance (negative-green, positive-red), b*=blue-yellow balance (negative-blue, positive-yellow). The texture was assessed by texture profile analysis, and the textural parameters were calculated.

RESULTS AND DISCUSSION

From the results obtained, it is possible to conclude that freeze drying turns the product lighter, although the other colour parameters practically do not change. On the other hand, increasing temperature induces more intense colour changes, for the convective dryings. With respect to texture, important variations were found in the firmness of the pulp from the fresh state to the various dried ones, and that increasing temperature is responsible for increasing firmness. As to the freeze drying treatment, the changes produced in firmness are less intense.

CONCLUSIONS

The results obtained enable us to conclude that the freeze drying was the treatment that produced products with properties more similar to the fresh pumpkin, thus allowing preserving the characteristics of this food product.

KEYWORDS: pumpkin; drying; freeze-drying; colour; texture.