

**XX ENCONTRO
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DE QUÍMICA**

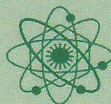
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Analysis of the variations along drying of the physical-chemical properties of carrot

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Drying is one of the oldest preservation techniques for foods, and presently conventional hot air drying is among the most used techniques for food dehydration [1]. Carrots are among the most common and popular vegetables throughout the world, because they provide valuable components indispensable for the development and proper functioning of the human body. They are very rich in β -carotene and vitamins of the B complex, being therefore considered a healthy food for human nutrition [2].

This study aimed to determine the physical and chemical properties of carrots (*Daucus carota* L.) cv. Nantes, along drying by convection with hot air at three different temperatures (50, 60 and 70 °C). The chemical properties evaluated were moisture content, protein, fibre, ash, sugars and water activity; and the physical properties were texture, colour, density and porosity.

From the data obtained it was possible to conclude that the drying at 70 °C originated more intense changes in the chemical properties analysed. For the drying at 70 °C, moisture was reduced 93% in relation to the original value, proteins were reduced by 46% and ashes by 6%, while the total carbohydrates remained approximately constant. Concerning the textural properties, similar changes were found in terms of hardness, resilience, cohesion and chewiness. Particularly hardness and chewiness showed a sharp decrease in the early stages of drying. Hardness diminished from ~300 N to ~50 N and cohesiveness diminished from ~0.9 to ~0.7.

Regarding the colour, it was observed a slight increase in lightness (L^*) for all temperatures, while a^* and b^* remained approximately constant.

The porosity increased along drying, due to the loss of moisture, varying from ~1% to ~6% (at 70 °C) or to ~8% (at 50 and 60 °C).

The present work allowed concluding that drying of carrots at mild temperatures (50 or 60 °C) does not produce very intense changes in the chemical properties, although the alterations at the physical level are evident.

REFERENCES

- [1] Vishwanathan, K.H.; Giwari, G.K. *Food and Bioproducts Processing*. 2013, 91(2), 89-94.
- [2] Zielinska, M.; Markowski, M. *Chemical Engineering and Processing: Process Intensification*. 2010, 49(2), 212-218.