CARPATHIAN JOURNAL OF FOOD SCIENCE AND TECHNOLOGY

journal homepage: **http://chimie-biologie.ubm.ro/carpathian_journal/index.html**

EFFECTIVENESS OF VACCUM IMPREGNATION TREATMENT AND VACCUM FRYING ON STRUCTURAL, NUTRITIONAL AND SENSORY PROPERTIES OF CALCIUM FORTIFIED POTATO CHIPS

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https://doi.org/10.34302/crpjfst/2019.11.2.2

Article history:
Received:
18 August 2018
Accepted:
20 May 2019

Keywords:
Fortification;
Solanum tuberosum L.;
Vaccum Impregnation;
SEM.

ABSTRACT

The effectiveness of VI technology on the mineral fortification, structural differences, nutritional and sensory properties of calcium fortified potato chips was evaluated. Furthermore, vacuum frying was also performed to achieve low oil absorption for potato chips. Vacuum pressure, blanching time, calcium concentration, were the significant variables affecting quality attributes and mineral fortification. Targeted 25% RDI for calcium fortification could be achieved at an optimized condition of 1.33 min (blanching time), 1.20% (calcium concentration), 40mm Hg (vacuum pressure), 12.01 min (restoration time). Restricted changes were recorded for hardness (455N), color ($\Delta E = 68.54 \pm 1.93$) and sensory score (8.1) compared to the control. Structural observation reflected that although there was a deposition of calcium on the cell wall periphery, but the granule appearance remained the same. Additionally, Vacuum fried calcium fortified potato chips have shown low oil uptake percentage. Thus, VI treatment and vacuum frying proved to be the most effective treatment in maintaining the overall quality of potato chips.