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6th International ISEKI-Food Conference

"Sustainable Development Goals in Food Systems:
Challenges and Opportunities for the Future"

BOOK OF ABSTRACTS

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ONLINE

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Sustainable Development Goals in Food Systems: Challenges and Opportunities for the Future

BOOK OF ABSTRACTS

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#235: Effect of different packaging materials on the shelf-life of chestnut (Castanea sativa Miller) during short-time storage

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Chestnuts are a perishable product that loses weight and spoils quickly. Therefore, it is essential to find methods to reduce economic losses. This study aimed to evaluate the effect of four different packaging materials - polyethene packaging" POLY", polyethene packaging with holes "PH", Modified Atmosphere Packaging "MAP", Vacuum bags "VAC-bags" and unpackaged chestnuts "control" - on the shelf-life of chestnuts stored at room temperature during 0, 2, 4 and 6 weeks. Several parameters such as colour, texture, moisture content, water activity, titratable acidity, total soluble solids, starch, amylose, aerobic mesophiles, and moulds and yeasts were determined.

The results showed that the colour, texture, moisture content, water activity, titratable acidity and total soluble solids were little affected by the type of bags used. The starch ranged from 35.2 to 50.4% dry matter (d.m.) without a specific trend, and amylose expressed on the starch basis (25.7 to 45.0%) suggested no remarkable starch functionality changes.

On the contrary, significant differences were observed between bags in weight loss, reducing sugars and microbial counts. The VAC-, MAP-, and POLY-bags showed percentages of weight loss lower than 2%, while the control and PH-bags had values equal to 13.2 and 9.2%, respectively. The highest values of reducing sugars were observed in POLY- and PH-bags, followed by the control, suggesting partial hydrolysis of the starch. Furthermore, VAC- and MAP-bags' application caused a considerable decrease in aerobic mesophiles, moulds and yeasts growth compared to the control during two and four weeks of storage.

Keywords

Chestnuts, Vaccum bags, Polyethene bags, Modified Atmosphere Packaging, Storage

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