Accepted Manuscript

Effect of cooking and packaging conditions on quality of semi-dried green asparagus during cold storage

L. Sergio, V. Cantore, L. Spremulli, L. Pinto, F. Baruzzi, D. Di Venere, F. Boari

PII: S0023-6438(17)30856-3

DOI: 10.1016/j.lwt.2017.11.037

Reference: YFSTL 6666

To appear in: *LWT - Food Science and Technology*

Received Date: 5 October 2017

Revised Date: 14 November 2017

Accepted Date: 17 November 2017

Please cite this article as: Sergio, L., Cantore, V., Spremulli, L., Pinto, L., Baruzzi, F., Di Venere, D., Boari, F., Effect of cooking and packaging conditions on quality of semi-dried green asparagus during cold storage, *LWT - Food Science and Technology* (2017), doi: 10.1016/j.lwt.2017.11.037.

Effect of cooking and packaging conditions on quality of semi-dried green asparagus during cold storage

L. Sergio[a],*, V. Cantore[a], L. Spremulli[b], L. Pinto[a], F. Baruzzi[a], D. Di Venere[a], F. Boari[a]

[a] Institute of Sciences of Food Production, National Research Council (CNR), Via G. Amendola 122/O, 70126 Bari, Italy; [*]lucrezia.sergio@ispa.cnr.it

[b] STC s.r.l. – Science Technology & Consulting, Via Murri 22, 72023 Mesagne (BR), Italy

ABSTRACT

Ready-to-eat asparagus (*Asparagus officinalis* L.) is a tasty food with excellent nutraceutical properties. In order to realize a new ready-to-eat product, in this study asparagus's spears were cooked by blanching or microwave, and then dehydrated until they reached a weight loss of 25%, and packaged in air or in modified atmosphere (30% CO_2 + 70% N_2). Sensorial, physico-chemical, biochemical, and microbiological parameters were evaluated during a 30 days storage period at 4 °C. The microwave cooking proved to be the most effective method to preserve green colour, improving the overall acceptability of the product. Moreover, the storage in the absence of O_2 and in the presence of high CO_2 percentage was the most effective method to preserve phytochemical composition, total antioxidant capacity, and hygienic quality. In conclusion, asparagus spears cooked by microwave, semi-dried, packaged in modified atmosphere and stored at 4 °C for 30 days retained their quality and sensorial properties.

Keywords: modified atmosphere packaging, sugars, phenols, antioxidant activity, microbial load