

TITLE: MICROBIOLOGICAL STABILITY AND BIOACTIVE COMPOUNDS IN ORGANIC MINIMALLY-PROCESSED RADICCHIO

AUTHORS: OLIVEIRA, F.M.; SILVA, L.S.; KOBORI, C.N.; ALMEIDA-CARLOS, L.; SILVA, A.M.

INSTITUTION: UNIVERSIDADE FEDERAL DE SÃO JOÃO DEL-REI - CAMPUS DE SETE LAGOAS, MG (RODOVIA MG 424 - KM 47, CEP 35701-970, SETE LAGOAS - MG, BRAZIL).

ABSTRACT:

Radicchio (*Cichorium intybus*) is an exotic non-conventional vegetable, highly perishable after harvesting. Minimally-processed vegetables are a quick alternative in the preparation of meals and may include organic products. The objective of this study was to evaluate the efficiency of the minimum-processing of radicchio leaves from organic cultivation in a way that would make them safer to consumption, characterizing their microbiological, physical-chemical and bioactive aspects. Radicchio leaves were selected, washed, sanitized (NaClO solution with 200 ppm active chlorine for 15 minutes), centrifuged, packed in 150 g portions in rigid plastic packages (PET/polyethylene terephthalate) and stored at 7 °C (simulating the temperature of commercialization). Samples were analyzed at 0, 3, 6 and 9 days of storage, following the official methodologies for the presence of Coliformes at 45 °C and *Salmonella* spp. and physical-chemical characteristics (pH, total soluble solids, titratable acidity, humidity and instrumental color) and bioactive compounds (total phenolics, total flavonoids, total anthocyanins and total carotenoids). Microbiologically, the vegetable was able to be consumed throughout the storage, since it showed absence of *Salmonella* spp. and counts of Coliforms at 45 °C below that allowed by current Brazilian legislation. The physical-chemical characteristics remained stable throughout the storage, with the exception of the parameters L and b*. The increase of the parameter b* suggests the degradation of chlorophyll and the increase of L reflects the darkening of the leaves, which was visually realized on the ninth day of storage. There were no significant differences ($p>0.05$) in the contents of bioactive compounds, which shows that there was significant retention of these compounds throughout the storage period. However, when evaluating the leaves, it was noticed that on the ninth day of storage, the same ones were darker and smelly. Thus, the protocol for the production of minimally-processed organic radicchio proved to be effective for the evaluated parameters. This product was harmless/safe for consumption and functional potential up to six days under refrigeration (7 °C), which could be a good option for consumers (aiming at healthier food, with the loss of food monotony) and also for farmers (higher added value for the marketing of radicchio).

Keywords: *Cichorium intybus*, functional food, quality control, phytochemicals

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