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Application of Osmotic Dehydration to Improve the Quality of Dried Goji Berry

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Short title: Osmotically pre-treated dehydrated goji berry: Quality attributes and shelf-life stability

ABSTRACT

Quality and preservation of dried goji berry can be improved with the application of osmotic dehydration (OD) as a pre-treatment step. The aim was to optimize OD conditions based on water loss, solid gain, water activity decrease and quality (color, antioxidant capacity, total phenolics, sensory properties) during processing and post-processing, to develop and produce a dried goji berry product of improved quality and with reduced energy requirements. Goji berries were treated in concentrated solution of glycerol, maltodextrin, ascorbic acid, sodium chloride for 60 min at 55°C, and air-dried for 300 min at 60°C (target a_w 0.50-0.55). Combining OD and air-drying led to drying time decrease by 120 min, bright red color close to the fresh berry color, improved texture characteristics, higher antioxidant capacity and total phenolic content of the final dried product. Quality of OD-treated and non-treated air-dried samples was monitored during storage at 25-35-45°C. Shelf life was significantly prolonged for OD-treated goji berries: 206 days at 25°C compared to 99 days for the non-treated.

Keywords: *Lycium spp.*; air-drying; osmotic pre-treatment; quality; shelf life

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