



***Opuntia* Mucilage Functional Properties: Gelling, Foaming and Emulsification**

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Abstract

The *Opuntia* mucilage is classified as a hydrocolloid. Hydrocolloids are long-chained polymers (with great diversity) that form a gel or dispersion. Coating, gelling, stabilizing and emulsifying are a few of the many functional properties attributed by hydrocolloids. Hydrocolloids are used as additives to attain preferred mouthfeel, viscosity and texture in foods. The quantity and chemical composition of hydrocolloids might influence viscosity and functional properties thereof.

The aim of the study was to investigate the ability of cactus pear mucilage, from different cultivars, to alter rheological properties.

Mucilage from 42 cactus pear cultivars (*Opuntia ficus-indica* and *O. robusta*) were analysed in terms of chemical composition (yield, viscosity, protein and sugar content) and functional properties (gelling, foam capacity and stability, as well as emulsification capacity and stability).

No gelling ability was observed, while some cultivars' mucilage was able to stabilize foams and emulsions. Best performing cultivars were Gymno-Carpo, Algerian, Van As, Postmasburg, Malta, Amersfoort and Robusta.

It was concluded that mucilage functional properties were influenced by chemical composition, since different cultivars had variable chemical compositions and viscosity values, leading to different functional properties. The food industry is seeking new sources of natural food additives. The application of cactus pear mucilage as natural hydrocolloid in food systems may be a valuable asset to both cactus pear producers and the food industry.

Biography: Maryna de Wit

Maryna de Wit started her academic career by obtaining a BSc degree, majoring in Biochemistry and Plant Sciences in 1996 at the University of the Free State, Bloemfontein, South Africa. She obtained her BSc Hons degree majoring in Biochemistry in 1997. She obtained her MSc in Food Science in 2000 and her PhD in 2003 in Food Science. She was appointed as lecturer at the Department of Microbial, Biochemical and Food Biotechnology in 2004. She was promoted to Associate Professor in 2020 and is currently part of the

Department of Sustainable Food Systems and Extension where she is lecturing in Food Science (plant products) and doing research on cactus pears.