

Physicochemical characterization of a dietary fibre concentrate extracted from date pulp

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Date palm (*Phoenix dactylifera* L.) has always played an important part in the economic and social lives of the people of arid and semi-arid regions of the world. Presently a large amount of date is discarded due to poor organoleptic properties. In order to increase the value of this waste product, an easy and performant process is developed to extract a concentrate dietary fibre fraction.

The chemical composition and the content in total dietary fibre of date pulp are first investigated. Then, technofunctional and physicochemical properties of date pulp and fibre concentrate are analysed. Two varieties (Deglett-Nour (DN) and Allig (AL)) are compared.

Monosaccharides values of date pulp are 62 % of dry matter for DN and 71 % for AL. The content of total fibre for DN is 14,3 % (5,2 % soluble fraction, 9,2 % insoluble fraction) while AL is 18,4 % (6,7 % soluble, 11,7 % insoluble). Compositions in cellulose, hemicelluloses, pectins and lignine are also determined.

From a novel extraction process, a clear dietary fibre concentrate (FC) is obtained with a yield of 67 %. The dietary fibre content of this FC reaches 88,0 % for DN and 92,4 % for AL. Cellulose (45 %) and hemicelluloses (28 %) are the main fraction followed by lignin (8 – 13 %) and pectins (4,1 %). FC also contains 9,1 % of proteins and 2,1 % of ash. Monosaccharides are not co-extracted.

High Water Holding Capacity (WHC) of FC (6,5 – 7,0 g water / g FC) and Oil Binding Capacity (OBC) of FC (9,6 – 9,9 g oil / g FC) are observed, indicating many potential applications in the food industry.