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Functional and physico-chemical properties of six desert-sources of dietary fiber

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Abstract

The Chihuahua desert has different plant species that have historically been used as food for a long time. Some of these plants can be novel sources of dietetic fiber, which is considered a functional ingredient. The aim of this work was determine the chemical and functional properties of six desert sources of dietary fiber: cabuche, palm flower, leaves of smooth amaranth, peel pickle pears, green and ashen agave bagasse. A proximate analysis was carried out to determine moisture, ash, protein and extractable lipid. Content of insoluble fiber (IF), soluble fiber (SF), and dietary total fiber (DTF), as well as the functional properties of dietary fiber as water holding capacity (WHC), swelling capacity (SW), oil holding capacity (OHC) and cation exchange capacity (CEC) were determined. The results showed that leaves of smooth amaranth were chemically different to the other analyzed samples. On the other side, the best DTF and IF content was observed in cabuche, while agave bagasses (green and ashen), peel of prickly pears and leaves of smooth amaranth showed the highest SF content. The dietary fiber sources that presented the best functional properties were cabuche and palm flower for water hold capacity and swelling capacity properties and for the oil hold capacity and cation exchange capacity properties were agave bagasses (green and ashen) which suggest that they could be a good source of dietary fiber.

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