Chemical and functional characterization of soy, oats and wheat fibers

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Fibers have been investigated because of their physiological functions; they can also be added to food products to promote desirable sensory characteristics with good consumer acceptance, reasonable cost without compromising the stability of the product. The objective of this study was to characterize commercial soy, oats and wheat fibers by their chemical composition and functional properties. For the chemical composition, moisture, ash, protein, lipid and soluble, insoluble and total fiber were determined according to AOAC (2006) methods. The functional characterization was performed by measuring the water adsorption (Vázquez-Ovando et al., 2009) and absorption (Okezie and Bello, 1988) capacities, oil absorption capacity (Okezie and Bello, 1988) and swelling volume Robertson et al., 2000). The soy fiber had higher protein (38.4%) and lipid (0.37%) contents. Wheat fiber had higher ash content (5.37%) and soluble (2.58%), insoluble (83.92%) and total (86.5%) fiber contents. The soy fiber had higher water adsorption capacity (0.284 g water. g⁻¹ sample d.b.), water absorption capacity (5.44 g water. g⁻¹ sample d.b) and swelling volume (9.7 ml. g⁻¹ sample d.b.) Wheat fiber had higher oil absorption capacity (3.2 g oil. g⁻¹ sample d.b.) The chemical and functional characteristics of different fibers depend on source and obtaining process. Soy fiber could be incorporated in products with the intention of retaining water and wheat fiber in products to retain oil.