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Wheat Germ: An Overview on Nutritional Value, Antioxidant Potential and Antibacterial Characteristics (2015)

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Abstract

Wheat germ is a by-product derived from the wheat milling industry. Defatted wheat germ is the main by-product of the wheat germ in the oil extraction process. This study aims at development of efficient and low cost processing methods to transform these residues in added value co-product. In this study, wheat germ was analysed for its proximate composition, fatty acid composition, physical and chemical characteristics of wheat germ oil. The basic chemical composition analyses revealed high values of dry matter (87.37 g/100g FW), significant amounts of total protein and fat (27.69 and 8.99 g/100g FW, respectively) content and low ash content (3.08 g/100g FW).

The quality of the extracted oils was assessed in terms of acid value, iodine value, saponification value, peroxide value, refractive index, and unsaponifiable matter. The fatty acid profile was found to be made up of linoleic followed by palmitic and oleic as the major fatty acids.

Antioxidant properties and *in vitro* antibacterial activity of defatted wheat germ (DWG) extract were also determined. DWG, as a source of natural antioxidants and antibacterial, could be used to formulate nutraceuticals with potential applications to reduce the level of oxidative stress. The antioxidant potency of the DWG extracts could be the basis for its health promoting potential. The results showed that these by-products could be used as a source of bioactive compounds beneficial for health.