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Antiradical properties of sorghum (*Sorghum bicolor* L. Moench) flour extracts

Auteur(s) / Author(s)

KAMATH Vasudeva G. ⁽¹⁾ ; CHANDRASHEKAR Arun ⁽²⁾ ; RAJINI P. S. ⁽¹⁾ ;

Affiliation(s) du ou des auteurs / Author(s) Affiliation(s)

⁽¹⁾ Food Protestants and Infestation Control Department, Central Food Technological Research Institute, Mysore 570 020, Karnataka, INDE

⁽²⁾ Food Microbiology Department, Central Food Technological Research Institute, Mysore 570 020, Karnataka, INDE

Résumé / Abstract

Epidemiological studies support the belief that whole grains are protective against several chronic diseases. The health benefits of whole grains are attributed in part to their unique phytochemical composition. Major phytochemicals in grains include various classes of phenolic compounds, flavonoids and coumarin derivatives, etc. Phenolic compounds present in grains possess antioxidant properties that are associated with the health benefits of grains and grain products. Sorghum is one of the main staple cereal grains in hot dry tropics and ranks fifth among cereal crops in the world. Although sorghum is rich in phenolics and tannins which are proven anticancer and cardioprotective constituents, human consumption of sorghum is limited. To our knowledge, there is limited literature on the profile of antioxidant phytochemicals in the local white variety of sorghum. Hence, the objective of this study was to investigate the antioxidant property of white sorghum flour extracts in vitro and also to identify the fractions responsible for the antioxidant activity. In the present study, we analyzed the antioxidative properties of various extracts (water, 60% methanol, 60% ethanol, and 60% t-butanol) of white sorghum flour employing the 1,1-diphenyl-2-picrylhydrazyl (DPPH) model system. Phenolics, antiradical and antioxidant activities were also examined in chromatographic sub-fractions of the soxhlet methanolic extract. Our results indicated that the various extracts exhibited significant antioxidant activity that did not correlate with the phenolic content. Further, two sub-fractions eluted with methanol and acetone/methanol were found to possess strong antioxidant activity in two assay systems. Our results suggest that a diet rich in sorghum may be useful in combating diseases in which free radical production plays a key role.

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