

**Analysis Of Bioactive And Functional Characteristics Of Red
And White Sorghum Flour (*Sorghum bicolor* L.)
As A Functional Food Ingredient**

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ABSTRACT

Sorghum (*Sorghum bicolor* L.) is one of the local cereal crops with the potential to be developed as a functional food due to its bioactive compounds and favorable functional properties. This study aimed to analyze and compare the bioactive characteristics, including antioxidant activity, flavonoid, tannin, and phytic acid contents, as well as the functional properties, namely Water Holding Capacity (WHC) and Oil Holding Capacity (OHC), of red sorghum flour and white sorghum flour. This study employed a quantitative descriptive design to describe the bioactive and functional characteristics of red and white sorghum flours processed using the germination method. Bioactive characteristics were analyzed through antioxidant activity using the DPPH method, flavonoid, tannin, and phytic acid analyses, while functional properties were evaluated through WHC and OHC measurements. The data were analyzed descriptively to compare the characteristics of the two types of sorghum flour. Red sorghum flour exhibited higher bioactive characteristics than white sorghum flour, with antioxidant activity of 78.50%, flavonoid content of 22.50 mg GAE/g extract, tannin content of 0.32%, and phytic acid content of 788 mg/100 g. Meanwhile, white sorghum flour showed antioxidant activity of 76.30%, flavonoid content of 19.20 mg GAE/g extract, tannin content of 0.29%, and phytic acid content of 530.50 mg/100 g. In terms of functional properties, red sorghum flour also demonstrated higher WHC (127.96%) and OHC (144.01%) values than white sorghum flour, which had WHC and OHC values of 126.67% and 137.17%, respectively. Red sorghum flour has greater potential as a functional food ingredient due to its higher bioactive compound content and superior functional properties compared with white sorghum flour, although it also contains higher levels of antinutritional compounds.

Keywords: bioactive, functional, germination, sorghum flour, red sorghum, white sorghum.