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Effect of addition of fermented bean seed flour on the content of bioactive components and nutraceutical potential of wheat wafers

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7

8 Abstract

9 In this study the influence of fermented bean seed flour (BF) with *Lactobacillus*
10 *plantarum* 299v on bioactive compounds, antioxidant activity and selected inhibitory activity
11 of wheat wafers were investigated. Wheat wafers with addition of BF (10%, 20%, 30%, 40%
12 and 50%), fermented bean flour wafers (100% BF) and wheat wafers (WF) were prepared.
13 The results indicated that wafers made from 100% fermented bean seed flour were
14 characterized by the highest content of bioactive compounds (0.086 mg mL⁻¹ for proteins,
15 0.79 mg mL⁻¹ for peptides, and 0.46 mg mL⁻¹ for polyphenols), compared with the control
16 sample. The highest peptide content after the hydrolysis process and DH were found for 100%
17 BF (2.29 mg mL⁻¹ and 32.81%, respectively). The antiradical activity against ABTS^{•+} was
18 noted for hydrolysates obtained from 40% BF (IC₅₀ = 17.81 μg mL⁻¹) and against DPPH in
19 the case of hydrolysates from 30% BF (IC₅₀ = 34.43 μg mL⁻¹). In turn, 50 % BF exhibited
20 higher Fe²⁺ chelating activity than the control sample (IC₅₀ = 4.57 μg mL⁻¹). The IC₅₀ values
21 were the same for hydrolysates from wafers with 50 % BF and 100 % BF and 0.14, 0.24, and
22 0.19 mg mL⁻¹ for α-glucosidase, lipase, and ACE respectively.

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