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ANTI-OBESITY PROPERTIES OF KIDNEY BEAN (PHASEOLUS VULGARIS) HUSK PEPTIDES IN DIET-INDUCED OBESE RATS: A FUNCTIONAL AND METABOLIC STUDY

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Abstract

Obesity is a global problem that is spreading at an incredible rate. Bioactive peptides of plant origin, e.g., extracts of *Phaseolus vulgaris* beans, are currently considered as one of the possible ways to treat this disease. In this work, we shed a light on the peptides from *P. vulgaris* husks, evaluating their anti-obesity properties for the first time. By acetic acid treatment of the kidney bean husk extract, we obtained hydrolysis-derived peptides and fed them to rats with diet-induced obesity. During the experiment, we measured rats' weight, and compared the weight of main organs right after euthanasia. Biochemical blood parameters were measured using specialized biochemical analyzers. Serum and brain serotonin levels were determined spectrofluorometrically. It was determined that group which consumed kidney bean peptides had improved visceral, brown and subcutaneous adipose tissue weights. In addition, this group showed improvements in total protein, total and indirect bilirubin, creatinine, aspartate aminotransferase, alpha-amylase, glucose, alanine aminotransferase, gamma-glutamyl transferase levels, and had improved serotonin levels. We believe that the anti-obesity properties of our peptides are directly related to their hypoglycemic activties. It may also be related to the already discovered antioxidant activity, or anti-inflammatory properties that our peptides may have.