

International Conference on
GASTROINTESTINAL CANCER AND THERAPEUTICS

4th World Congress on
DIGESTIVE & METABOLIC DISEASES

26th Annual Congress on
CANCER SCIENCE AND TARGETED THERAPIES

October 29-30, 2018 | San Francisco, USA

Effects of white bean flour (*Phaseolus vulgaris*) on intestinal mucosa: Food safety assessment

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Bean (*Phaseolus vulgaris*) "in natura" supplementation has been indicated for fat burning, reduced appetite, and weight loss. However, there are reports of risks to health arising from its use. This study evaluated the food safety of white bean flour as a dietary supplement. Mice were divided into three experimental groups (n=10) and 0.5ml of white bean flour extract (WBFE) were orally administered daily at two concentrations: Group 1 (2.65g/kg), Group 2 (5.30g/kg) and control (PBS) for 14 days. Half of the animals were euthanized on day 14 to assess acute exposure and half on day 28 to assess lesion recovery. The small intestine was collected for histological analysis, dosage cytokines (TNF, IFN- γ , IL-12, IL-4, IL-6, IL-10 and MCP-1), and antioxidant enzymes (CAT, SOD, and MDA). The animals WBFE-treated groups had a decrease in body weight and glycemia in a dose-dependent manner. There was a reduction in the height of the intestinal villi and an increase in the depth of the crypts. Animals from group 2 (5.30g/kg WBFE) presented mononuclear inflammatory infiltrate in the intestinal mucosa and increased MCP-1 and NO. SOD, CAT, and MDA were higher in the treated groups, however, no difference in relation to control. Animals presented repair their intestinal mucosa, reestablishment of glycemia and the increase of weight gain in the absence of WBFE. The WBFE showed antinutritional and immunomodulatory effects, therefore, it is not safe as oral dietary supplementation at the dosages used.

Biography

Wendee Ferreira da Silveira completes biological sciences course at Santa Marcelina University. He started at Universidade Federal de Viçosa–UFV in 2012. Ended PhD in 2018. He currently coordinates the immunochemistry and glycobiology laboratory of the same institution. It acts in the areas immunotherapy for experimental Chagas disease, protein-carbohydrate and protein-protein interaction in infections by intracellular pathogens, identification and characterization of new lectins, IgY microencapsulation for veterinary use, prospecting of biomolecules with antimicrobial and antiparasitic activity, glycobiology of venoms.

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