HP-08: Study of the effect of Bifidobacterium animalis subsp. Lactis BB-12 and Lactobacillus plantarum 299v® on some biochemical parameters and body mass index of obese rabbits

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Obesity and metabolic syndrome have become a real public health problem in the world. Thus, the prevention of obesity and the promotion of a healthy and balanced diet are the priority of health organizations.

The objective of this study is to evaluate the consequences of obesity on biochemical and morphometric parameters and to determine the effect of probiotics on obese rabbits and their offspring.

The first experiment was performed on 40 rabbits of the ITELV2006 line. These rabbits were divided into two groups, control and obese, and were fed a high-calorie, high-fat diet called "cafeteria" for 14 weeks to induce an experimental model of obesity and metabolic syndrome (MetS). Results revealed a significant increase in fasting blood glucose and OGTT ($p < 0.001$), as well as an altered lipid profile ($p < 0.001$) and an increase in BMI ($p < 0.01$), weight ($p < 0.001$), and abdominal circumference ($p < 0.001$).

The second experiment involved 18 rabbits from the "Obese" group of the first experiment, divided into three subgroups of six rabbits each (control (TO), *Bifidobacterium animalis subsp. lactis* BB-12®(OB) and Lactobacillus plantarum 299v®(OL), for 30 days. The results demonstrated improvement in both groups (OB and OL) compared to the control group, including significant decreases in fasting blood glucose ($p < 0.001$), OGTT ($p < 0.05$), total cholesterol ($p < 0, 001$), triglycerides ($p < 0.01$) and LDL ($p < 0.001$), significant increase in HDL ($p < 0.05$) and significant decrease in weight ($p < 0.05$), abdominal circumference ($p < 0.05$) and BMI ($p < 0.05$).

Finally, future studies are needed and have to be considered with the use of other probiotics or a mixture of several probiotic strains and extending the duration of administration in order to confirm the total safety of using probiotics to prevent obesity and MetS.

Key words: Rabbits, cafeteria, obesity, metabolic syndrome, probiotics, gut microbiota.