

INFLUENCE OF CHICORY PREPARATION CONTAINING FRUCTANS AND POLYPHENOLS ON NITROGEN EXCRETION PATTERNS AND ILEAL MINERAL ABSORPTION IN RATS

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Abstract. In two experiments on Wistar rats, the influence of chicory fructans and their dietary combination with polyphenols on nitrogen excretion routes and mineral absorption in the ileum was examined. In the first experiment, during 15 days, twenty four rats were randomly divided into three equal groups of eight animals. The rats were assigned to the following diets: control (C), with 7.5% of chicory fructooligosaccharides (F), and that containing 7.5% of fructooligosaccharides combined with 0.05% of polyphenols (FP) were applied to 24 animals. In the second experiment on 30 rats, an *in situ* technique in an open system based on controlled flow of perfusion fluid through the small intestine of anaesthetized rats was used for assessing gut absorption. The content of fructooligosaccharides in the F fluid was 9.7 g/100 ml, while in the FP group the fluid contained similar amount of FOS and 62.5 mg of chicory polyphenols per 100 ml. Feeding fructooligosaccharides caused, typical for this type of dietary fibre, higher nitrogen excretion in faeces and lower N losses in urea as compared to the control group. Simultaneous dietary addition of polyphenols slightly increased these effects, however, the N digestibility and utilization indices did not differ significantly between F and FP groups (Experiment I). The chicory preparation containing both fructooligosaccharides and polyphenols decreased the ileal absorption of glucose and magnesium from the perfusion fluid in comparison to the F group. It was reflected in the lowest serum concentration of glucose in the FP group measured just after the perfusion period. Both preparations F and FP similarly increased the rate of calcium absorption when compared to the control treatment.

Key words: chicory, fructans, polyphenols, nitrogen balance, ileal absorption, rat.