COMPARISON THE EFFECT OF COMBINATION PROBIOTIC, PREBIOTIC AND OIL ON THEIR COMBINATION ON CAECAL MICROFLORA OF RATS

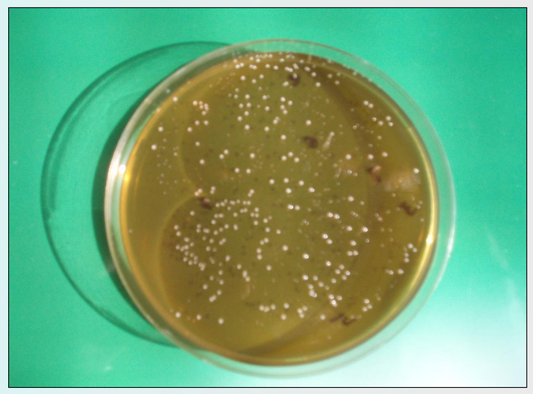
Strojný L., Bomba A., Hijová E.
Institute of Experimental Medicine, Faculty of Medicine,
Pavol Jozef Šafarik University, 040 11 Košice, Slovak Republic

INTRODUCTION

Lactic acid bacteria - probiotics are viable microbial food ingredients supposed to be beneficial through their effect in the intestinal tract. It is suggested that dietary fatty acids affect the attachment sites for the intestinal microbiota, possibly by modifying the fatty acid composition of the intestinal wall. The aim of work was to compare the application effect of probioticum, prebiotics and oil and their combination at rats.

MATERIAL AND METHODS

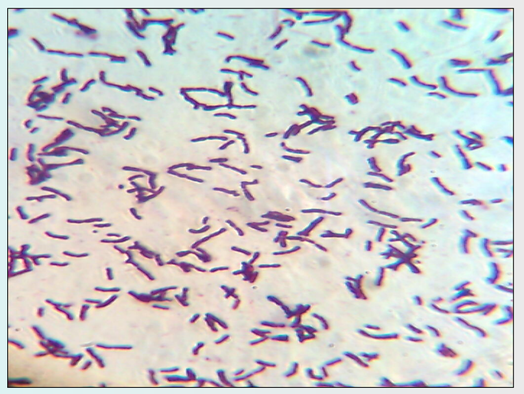
The rats (*Wistar*) at the age of 6 months were used in our experiment. Animals were administered with fat diet (FD) with content 10% fat/kg of feed. Water was administered *ad libitum*. The rats (n=72) were divided in to 6 groups with 12 animals. 1.2-dimethylhydrazine as procarcinogen was administered in dose 20 mg/kg s. c. in experimental animals . (Groups C2, PRO, PRE, O, PRO–PRE–O) on 2 and 3 week after beginning of the experiment. Lenght of experiment was 8 weeks.

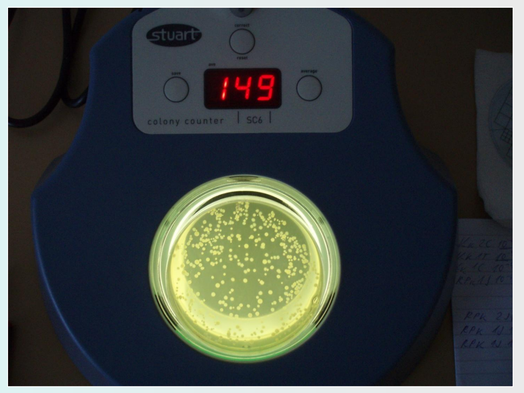


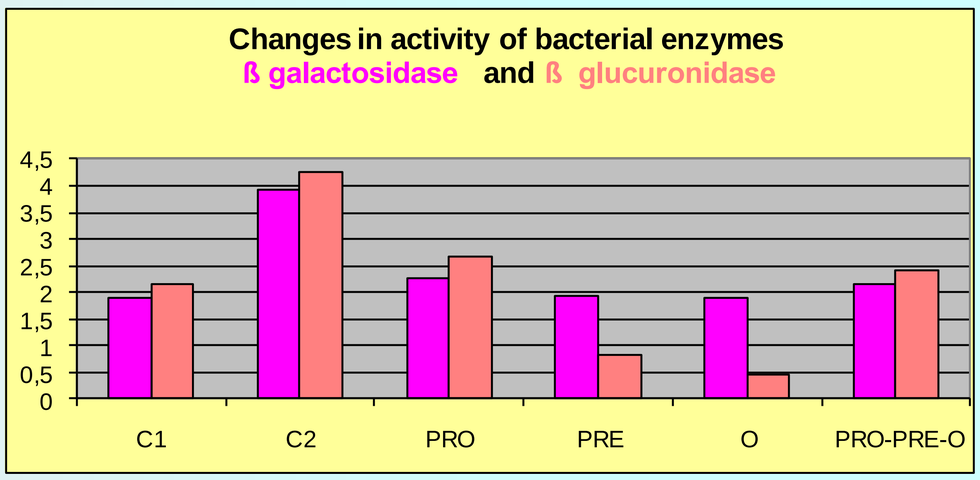
Rats were distributed into 6 groups and received

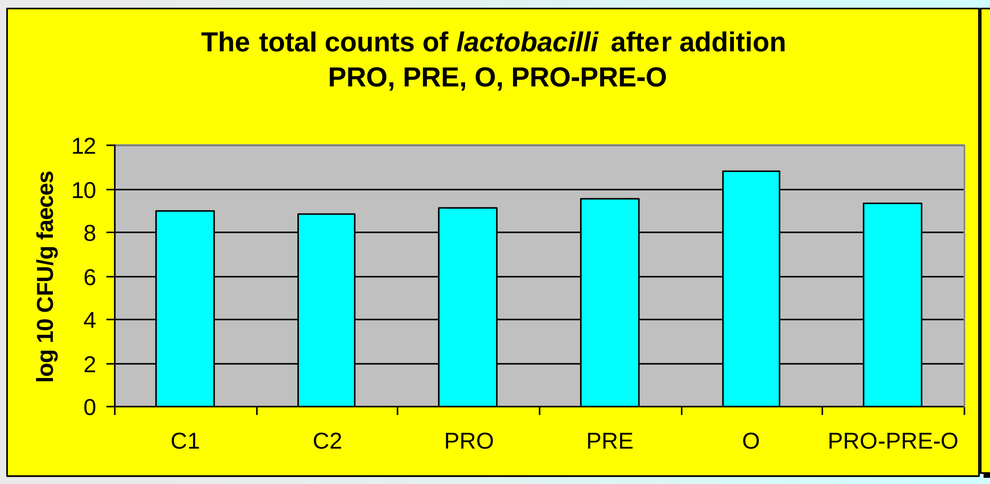
Group 1 (control 1) received 2.5% FD conventional diet.
Group 2 (control 2) received 10% FD.
Group 3 (PRO) was administered by fresh culture of *L. plantarum* in dose $3x10^9$ CFU/1ml medium MRS.
Group 4 (PRE) was received in combination with prebiotics Beneo Synergy 1, Orafti, Tienen, (Belgium) was applied in dose 2% of FD diet and with oligofructose-enriched inulin.
Group 5 (O) was received *Lini oleum virginale* at dose of 2% of FD diet containing high levels of (PUFA).
Group 6 (PRO-PRE-O) received fresh cultures of *L. plantarum* in dose $3x10^9$ CFU/1ml, prebiotics and oil in feet.

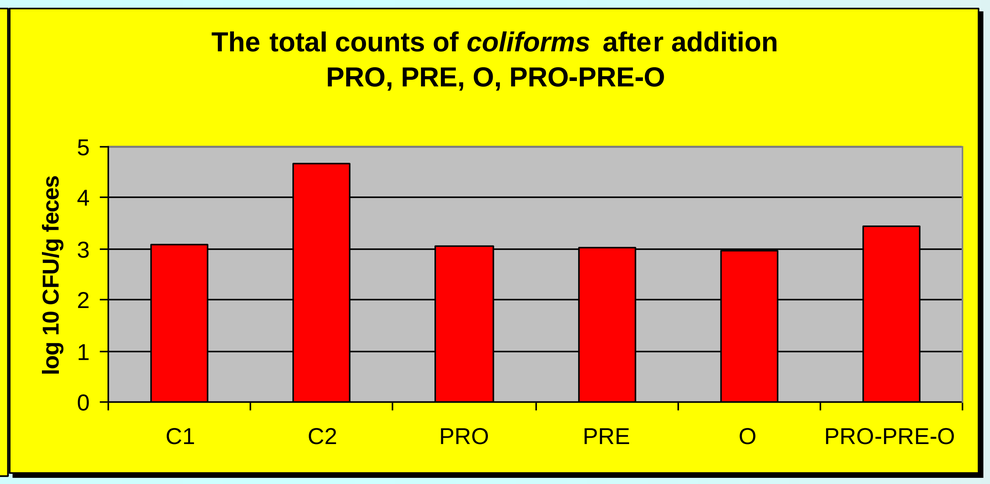
The counts of coliforms and lactobacilli have been determined by using cultivation method. The viable counts were expressed as the log 10 of colony forming units (CFU/g^{-1}) of faeces.











RESULTS

In the experiment with rats we observed the statistical significant increase ($p \leq 0.05$) of *Lactobacilli* in group 5 (O) compared with control group 2. The counts of *coliforms* were significantly decreased ($p \leq 0.05$) in group 5 (O) compared with control group 2.
Activity of enzymes ß –glucuronidase and ß –galactosidase were in all experimental groups were decreased ($p \leq 0.001$) compared with control 2.
The results obtained in our experiment suggest, that the growth of *lactobacilli* in caecal digesta of rats is the most suitable in oil (O), prebiotics (PRE) and combination probiotic, prebiotic and oil (PRO–PRE–O).

CONCLUSIONS

Our results showed, that application of oil-O, prebiotics-PRE and combination PRO–PRE–O in fed of rats had the best affect on the total counts of *lactobacilli*, *coliforms* and enzymatic activity of caecal digesta in rats.

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CONTACT ADDRESS

MVDr. Ladislav Strojný, PhD, Institute of Experimental Medicine, Faculty of Medicine,
Pavol Jozef Safarik University, 040 11 Košice, Slovak Republic, e-mail: ladislav.strojny@upjs.sk