Eight Probiotics Effective in Lowering Serum Lipids

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Aims and Methods: ***Many types of Lactobacillus (LBs) have been suggested for use to lower the serum lipid, but this is not the case for all LBs. In the present study, eight probiotics (Lactobacillus acidophilus, Bifidobacterium bifidum, Lactobacillus casei, Bifidobacterium infantis, Bifidobacterium longum, Lactococcus lactis, Lactobacillus paracasei, Lactobacillus rhamnosus) including five LBs were selected and tested for their ability to lower the serum lipid level of male rats on a high-fat (12%) and high-cholesterol (0.2%) diet. This experiment included orally injecting a set ratio of probiotics into rats which were given high lipid and high cholesterol diets***

Results: The levels of serum high- density-lipoprotein-cholesterol (HDL-C) low-density-lipoprotein- cholesterol (LDL-C), Triglycerols (TG), and total cholesterol (TC) were increased in the group given high cholesterol and high fat (110 ± 12, 241 ± 97, 586 ± 218 and 546 ± 303, respectively), as compared to the control group (51 ± 8, 19 ± 5, 75 ± 15 and 104 ± 42, respec- tively). When treated with rosurastatin (rosuvastatin), the rats showed expected recovery of serum LDL-C, TG, and TC levels. When treated with various doses (200, 400, and 800 mg/kg) of the probiotics, the rats presented different levels of recovery of serum LDL-C, TG, and TC levels in a dose-dependent manner.

Conclusion: Therefore we suggest that the eight probiotics may have the potential function of lowering serum lipid in rats.

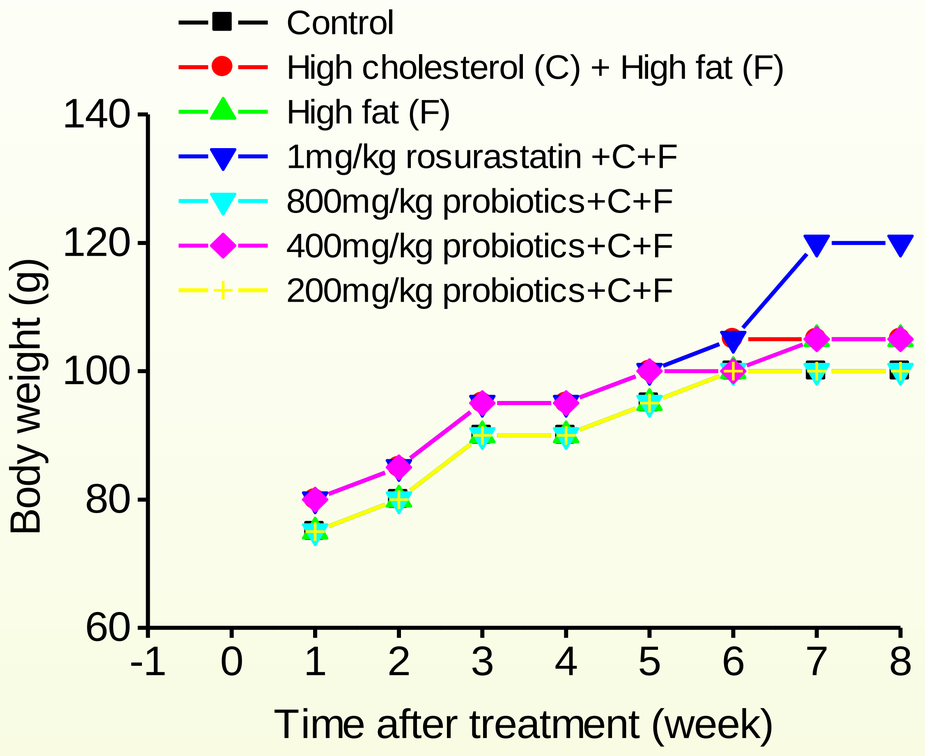

Figure 1. The change of body weight in rat treated with treated high fat with cholesterol and eight probiotics.

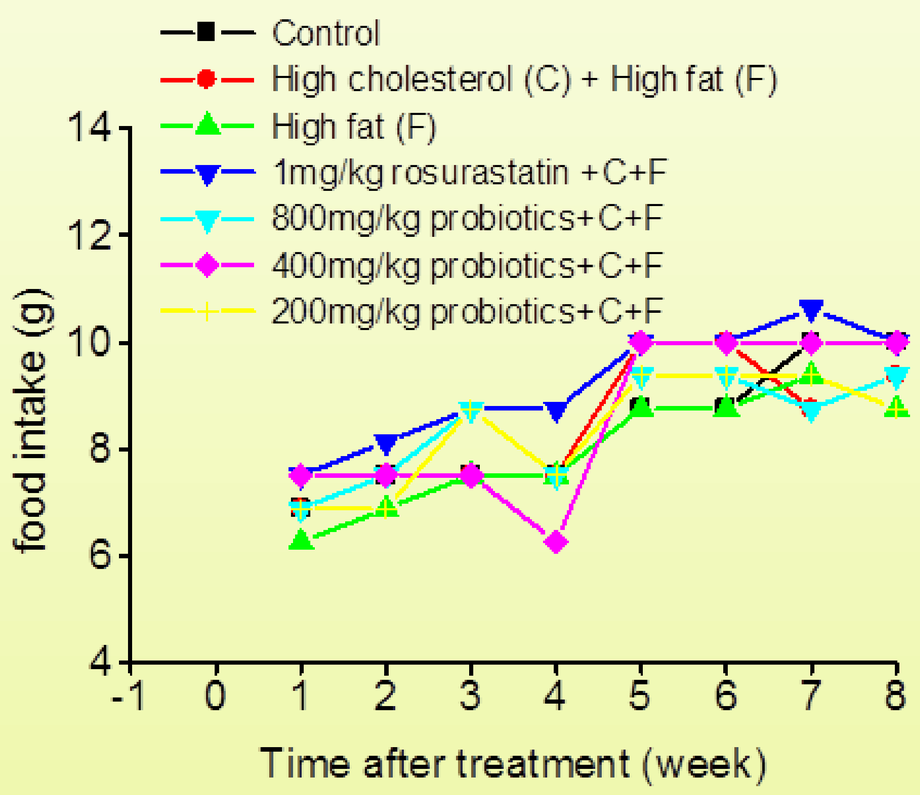

Figure 2 OGE treatments prevent the RSC96 cells from H_2O_2- induced cell death. (A) RSC96 cells were incubated with H_2O_2 300μM for 24 h. Cell survival percentage were different form the pretreatment of OGE. OGE behaved a significant protection at 200μM pretreatment for 24 h. (B) Even the cytotoxicity of H_2O_2 at the concentration of 400μM was high, there were still some OGE-pretreated RSC96 cells were survival after H_2O_2 400μM for 4 h.

Table 1. The effect of eight probiotics on the change of serum lipid in rats treated with cholesterol

Group	HDL-C (mg/dL)	LDL-C (mg/dL)	Cholesterol (mg/dL)	TG (md/dL)
Control	51±8*	19±5*	75±15*	104±42*
High-cholesterol+High-fat (C+F)	110±12#	241±97#	586±218#	546±303#
High fat (F)	95±15#	27±12*	152±25*	172±61*
1mg/kg rosurastatin +C+F	116±14#	107±48*	318±70#,*	158±54*
800mg/kg probiotics+C+F	87±26#	93±31*	255±89*	272±264
400mg/kg probiotics+C+F	80±14#	117±79*	302±196#,*	247±228*
200mg/kg probiotics+C+F	105±19#	220±57#	503±123#	474±207#

In protective testing in rats (8 weeks application period), a maximum daily dose of 800 mg probiotics per kg body weight was orally administered to rats (W.S.). The data were expressed as mean±SD. n=8. #P<0.05 vs. control group; *P<0.05 vs. High fat and high choesterol group.