Effect of a polysaccharide extract from *Cystoseira usneoides* on serum glucose and lipids in normal rabbits

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[redacted]

since glucose levels lowered and triglycerides rose (insulin release does not seem to be involved in the hypoglycemic effect). Table 1 lists the effects of the extract on serum lipoproteins. High density lipoproteins were not significantly modified in the treated animals (data not shown), whereas low density lipoprotein (LDL) concentrations significantly lowered 4 h after administration, about 30-40%. However, very low density lipoprotein (VLDL) levels were enhanced according to the triglyceride increase. On the other hand, *C. usneoides* caused significant 23% and 44% drops in the lipase activity at 4 and 8 h after administration, respectively (Fig. 4).

The effects of seaweed on GPT and GOT are listed in Table 2. Doses of 10 and 15 mg/kg significantly lowered GPT activity at the 4th hour, but GOT was significantly increased by the extract at the highest dose 8 h after administration.

The results show that polysaccharides from hydrochloric acid extract possess hypoglycemiant and hypocholesterolemic properties. More studies are being carried out on hyperglycemic animals in order to determine the potential antidiabetic activity of *C. usneoides*.

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Table 1

Effect of the *C. usneoides* extract on serum LDL and VLDL levels. Each value represents the mean ±S.E.M. of 4-10 animals. Differences with respect to the control group: * $p < 0.05$; ** $p < 0.01$.

Treatment	% LDL change		% VLDL change	
	4 h.	8 h.	4 h.	8 h.
Control	–3.6 ± 5.3	–11.0 ± 4.6	2.3 ± 4.4	24.6 ± 5.8
C. usneoides 5 mg/kg	–34.1 ± 8.0**	–8.6 ± 21.9	28.9 ± 12.3	12.8 ± 15.7
C. usneoides 10 mg/kg	–30.0 ± 11.1*	–22.7 ± 8.8	70.9 ± 48.3*	45.2 ± 19.0
C. usneoides 15 mg/kg	–39.2 ± 6.6**	–33.6 ± 14.0	59.3 ± 15.9**	52.7 ± 22.0

Table 2

Effect of the *C. usneoides* extract on serum GOT and GPT levels. Each value represents the mean ±S.E.M. of 4-10 animals. Differences with respect to the control group: * $p < 0.05$; ** $p < 0.01$.

Treatment	% GOT change		% GPT change	
	4 h.	8 h.	4 h.	8 h.
Control	37.4 ± 26.2	12.6 ± 17.6	5.9 ± 5.7	15.3 ± 7.0
C. usneoides 5 mg/kg	22.3 ± 27.0	69.1 ± 51.4	–1.5 ± 5.7	5.2 ± 8.5
C. usneoides 10 mg/kg	41.6 ± 32.8	64.9 ± 17.7	23.9 ± 6.2**	13.6 ± 7.1

Fig. 2

Effect of the *C. usneoides* extract on serum cholesterol levels. Each point represents the mean ±S.E.M. of 4-10 animals. Differences with respect to the control group: * $p < 0.05$; ** $p < 0.01$.

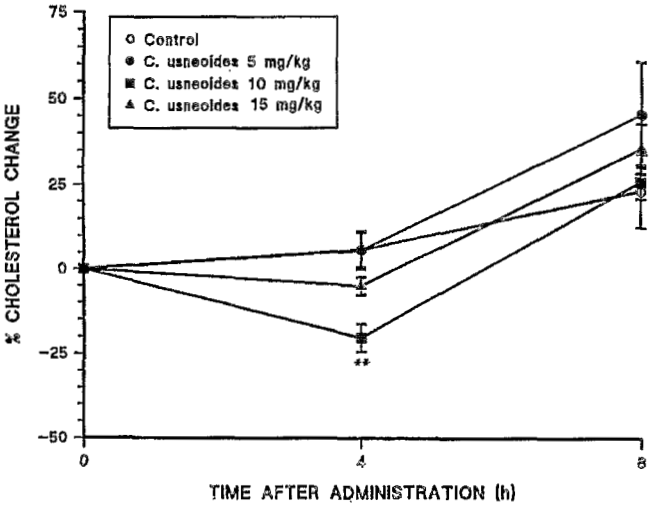

Fig. 3

Effect of the *C. usneoides* extract on serum triglyceride levels. Each point represents the mean ±S.E.M. of 4-10 animals. Differences with respect to the control group: ** $p < 0.01$.

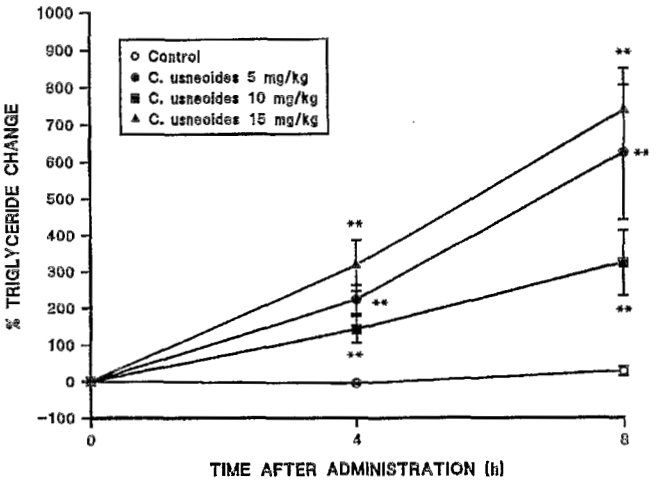

Fig. 4

Effect of the *C. usneoides* extract on serum lipase levels. Each point represents the mean ±S.E.M. of 4-10 animals. Differences with respect to the control group: ** $p < 0.01$.