LUPIN PROTEINS REDUCE PROGRESSION OF A FOCAL ATHEROMATOUS LESION IN RABBITS

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In spite of the health claim, approved by the FDA, on the role of soy proteins in reducing the risk of coronary heart disease, soybean based foods are used to a modest extent in Western Europe. Lupin is a valuable alternative to soy, being a protein-rich legume, poor in anti-nutritional factors. The aim of the study was to evaluate the effect of lupin protein based diets on the progression of atheromatous lesions in New Zealand White rabbits.
Focal lesions were induced, by electric current, on common carotid arteries of 18 rabbits. After surgery, animals were fed for 90 days a diet containing 1% cholesterol, 15% saturated fatty acids and 20% protein. The protein source was 20% casein (CA), 10% casein and 10% lupin protein isolate (CA+LP), or 20% lupin protein isolate (LP). Total cholesterol (TC) and triglyceride (TG) levels were measured at 0, 30, 60, 90 days of dietary treatment. At 90 days after surgery, rabbits were sacrificed and histological analysis of carotids was performed.
Lupin fed rabbits displayed lower TC levels, compared to casein fed animals, at 60 and 90 days after surgery ($p<0.05$). No differences in TG plasma concentrations were observed among the three groups at each time point analyzed. Histological analysis of carotids showed a significant reduction of focal lesion progression in lupin protein isolate versus casein fed rabbits ($1.04x10^9 \pm 0.43x10^9$ vs $1.66x10^9 \pm 0.30\ x10^9 \mu m^3$; $p<0.05$).
These results indicate, in this animal model, cholesterol lowering activity and a reduced atherosclerosis progression associated with lupin protein based diets.