Nutritional quality of lupine (Lupinus albus cv. Multolupa) as affected by lactic acid fermentation

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The effects of selected NRRL strains of Lactobacillus acidophilus, L. buchneri, L. cellobiosus and L. fermentum upon oligosaccharide, phytate and alkaloid contents, as well as on the nutritive value of lupine, were investigated. Lupine was processed to a 12% total solids suspension, inoculated with 1% (v/v) cultures and fermented until a final desired pH of 4.5. L. acidophilus B-2092 and L. buchneri B-1837 growth was related to a significant sucrose breakdown and decreases of phytates, whereas L. acidophilus B-1910 and L. fermentum B-585 reduced the content of flatulence oligosaccharides. The activity of L. acidophilus B-1910 was particularly associated with lowering of alkaloids and increase of riboflavin. Lactic acid fermentation produced slight changes in lysine and methionine contents. No significant differences in net protein ratio values and protein digestibility were found between fermented and unfermented lupine ($P < 0.05$). A 1 : 1 ratio mixture of B-1910 and B-2092 strains of