

Abundant α -amylase inhibitor related proteins are stored in Lima bean (*Phaseolus lunatus* L.) seeds

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Beans normally show lectin related proteins as major components of total seed protein.

Phaseolus lunatus seeds are thought to contain lectins only as minor components; these are tetramers of glycosylated polypeptides with MW of about 31,000 (Imbrie-Milligan et al., J. Biol. Chem., **264**, 16793-16797, 1989; Jordan and Goldstein, J. Biol. Chem., **269**, 7674-7681, 1994).

We have further investigated on the presence of these proteins in *P. lunatus* seeds, cultigroup Big Lima.

Western blot analysis of total seed protein, using antibodies raised against *P. vulgaris* lectin related proteins, revealed the presence of four crossreacting polypeptides of about 50 kDa, which, if taken all together, represent the second major component, beside phaseolin (Sparvoli et al. Biochim. Biophys. Acta, **1292**, 15-22, 1996).

These polypeptides are glycoforms of two polypeptides and, in native conditions, assemble into oligomers in the range of about 90 to 140 kDa.

N-terminal analysis revealed identity between N-termini of the polypeptides and those derived from Lec1 and Lec2 clones, suggesting these proteins belong to the α -amylase related subfamily (Sparvoli et al., this issue).

This finding was confirmed when N-termini of fragments generated by CNBr treatment were determined.

In all cases the sequences were unambiguously positioned on the corresponding sequences derived from the clones.

Lima bean seeds therefore contain α -amylase related proteins as major seed components.