

DESIGN OF LUPIN SEEDS LACTIC ACID FERMENTATION – CHANGES OF DIGESTIBILITY, AMINO ACID PROFILE AND ANTIOXIDANT ACTIVITY

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Abstract. Lupin seeds contain significant amounts of protein, fat, minerals and dietary fibre. The importance of lupin as a valuable source of nutrients to be used in food and feed production has increased in recent years. However, the use of legumes as a source of protein is somewhat limited because of low digestibility of most plant proteins. The digestibility of lupin protein could be improved by using lactic acid fermentation.

The aim of this study was to evaluate the influence of solid state fermentation (SSF) with *Lactobacillus sakei* KTU05-6, *Pediococcus acidilactici* KTU05-7 and *Pediococcus pentosaceus* KTU05-8 strains on *in vitro* protein digestibility, changes of total amino acids (TAA) profile, total phenolic compounds (TPC) content, and antioxidant activity of *Lupinus luteus* L. and *Lupinus albus* L. lupin seeds.

Lupin variety and lactic acid bacteria (LAB) used for fermentation have a significant influence on acidity parameters, digestibility, amino acid profile, total phenolic compounds content and antioxidant activity of lupin wholemeal. Optimisation of lupin fermentation conditions could increase the possibility to produce new higher value food/feed products, which are of great interest for the design of functional foods/feeds and nutraceuticals.

Keywords: Lupin, fermentation, lactobacilli, biogenic amine, amino acids