BIOGENIC AMINE FORMATION IN FERMENTED PLANT PRODUCTS USED FOR FEED

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Abstract. Feed fermented by lactic acid bacteria (LAB), usually is regarded as non-toxic and non-pathogenic, but some LAB species may influence biogenic amine formation.

The aim of this work was to evaluate the effect of *Pediococcus acidilactici* and spontaneous sourdough on biogenic amine formation in plant products: flaxseed, yellow lupine (*Lupinus luteus L.*), white lupine (*Lupinus albus L.*), soya flour, and soya seed varieties „Rudoji“ and „Progress“. Plant products were fermented with different starter cultures and the amount of biogenic amines (putrescine, histamine, cadaverine, tyramine, spermidine, spermine) was determined.

It was found that the content of biogenic amines depends on plant matrix specifics and can vary from 392.4 mg kg $^{-1}$ (in *Lupinus luteus L.*) till 121.8 mg kg $^{-1}$ (in soya seed variety „Progress“) (p=0.0040).

Fermentation without starter cultures leads the greater amount of histamine and tyramine in plant products, except in soya seed variety „Progress“ (histamine levels remained unchanged – 5.5 mg kg $^{-1}$) and in flaxseed (tyramine content decreased by 2.1 times).

Both types of fermentation: with *Pediococcus acidilactici* and spontaneous sourdough are safe, because the toxic rate of histamine concentration (400-500 mg kg $^{-1}$) was not find in the tested samples.

Keywords: biogenic amine, fermentation, flaxseed, soya, yellow and white lupine.