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Use of an RP-HPLC method to determine the lysine content in seven varieties of peas

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Peas (*Pisum sativum* L) are a plant with excellent potential as a source of energy and protein for monogastric animals. The compound feeds formulations that include peas are characterized by: High protein digestibility, excellent balance between the component amino acids, and high content of lysine, favorable to meat production. Lysine is a limiting amino acid and also irreplaceable in pig and poultry feed. The purpose of this study was to determine, by reversed phase high performance liquid chromatography (RP-HPLC), the lysine content of seven varieties of peas (Biathlon, Nicoleta, Specter, Windham, Vedea, Rodil and Aurora), existing in the seed bank of National Agricultural Research and Development Institute (Fundulea, Romania), likely to be used in farm animal diets. Determination of lysine in peas, as essential amino acid, is a key tool for animal nutrition specialists. Lysine was determined by reversed phase chromatography, using high performance liquid chromatograph, Finnigan Surveyor Plus HPLC (Thermo-Electron Corporation, Waltham, USA), equipped with a BDS Hypersil C18 column with silica gel, the mobile phase consisting of two solvents, solvent A (phosphate buffer) and solvent B (water: acetonitrile: methanol 20:20:60 v/v/v). The column temperature is 45°C, and the flow rate of 1.7 mL/min for 40 min. Lysine concentration in the analysed varieties of peas ranged from 1.489 g/100 g (Nicoleta variety) to 1.940 g/100 g (Vedea variety). The series of analytical values determined in the seven varieties of peas has a coefficient of variation of 0.085. The use of liquid chromatography is a relatively simple and accurate method to assess the lysine content of feeds. Using RP-HPLC method is a tool for nutritionists for the formulation of diets, particularly to decide whether to use, or not to use synthetic lysine in these diet formulations.

Biography

Raluca Paula Turcu is a first year PhD student from University of Agronomic Science and Veterinary Medicine of Bucharest. She holds an Engineering degree and Master's degree in "Security management environment and food safety". She works as Scientific Research Assistant in the laboratory of chemistry and nutrition physiology of the National Research Development Institute for Animal Biology and Nutrition, IBNA-Balotesti. She published two papers in national scientific journal, indexed in international databases.

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