SULFUR CONTENT AS A SCREENING CRITERION FOR METHIONINE AND CYSTEINE LEVEL IN PEA SEEDS-/

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The content of total protein, total sulfur (TS), sulfate sulfur (S-SO_4), methionine and cysteine (1/2 cystine) was determined in 25 seed samples representing diverse forms of Pisum, ranging from primitive to cultivated. The sulfur content was determined by the nephelometric method, described in the paper to be published in "Hodowla Roslin, Aklimatyzacja i Nasiennictwo" (a Polish journal, "Plant Breeding, Acclimatization and Seed Production"). The level of sulfur-containing amino acids was determined by an automatic amino acid analyzer. Results concerning the difference between the contents of total and sulfate sulfur ("TS - S-SO_4") and data obtained for the content of sulfur of sulfur-containing amino acids (S-SAA) were statistically analyzed.

The analysis showed that the contents of S-SAA and "TS - S-SO_4" form similar patterns. The correlation between the contents of S-SAA and "TS - S-SO_4" proved to be stronger (r=0.93**) than that between the contents of S-SAA and TS (r=0.78**). It should be stressed that the level of "TS - S-SO_4" was very close to that of S-SAA, averaging 6% higher. From these results it may be inferred that in the preliminary screening of pea breeding materials for sulfur-containing amino acids (which limit the nutritional value of seed protein of legumes) a quantitative analysis of methionine and cysteine may be substituted by determination of the contents of total and sulfate sulfur.

A negative correlation was found between the protein content in the seed and the proportion of sulfur-containing amino acids in protein.

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