Amino-acid compositon of emmer landraces grain

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This article deals with a study of amino acid composition of 6 varieties of emmer coming from the genetic resources. In the year 2007, small-parcel double trials were set up at two locations, at the Research Institute of the Crop Production in Prague (fertile location) and at the Faculty of Agriculture in České Budějovice (marginal location). Amino acid content was analysed by method of acidolisys at AAA 400 apparatus based on liquid chromatography. Accroding to the findings, lysine is the limiting amino acid is emmer wheat and bread wheat too. There are no considerable differences in lysine content between the tested varieties (chemical score varies from 0,37 to 0,44). The proportion of amino acids was obviously ($p<0,05$) influenced by crude protein content (valine r=-0,72; tyrosine r=- 0,56; phenylalanine r=-0,73) in negative way. The proportions of valine, leucine, tyrosine, phenylalanine were obviously ($p<0,05$) influenced by the relation to species and variety; the controlling varieties of wheat achieved higher values. The correlation analysis of essential amino acids also provides very interesting figures; threonine content is in positive correlation to isoleucine content (r=0,96), leucine (r=0,91) and lysine (r=0,95). The proportion of valine is in positive correlation to phenylalanine content (r=0,99). Isoleucine is in positive correlation to leucine content (r=0,98) and to lysine content (r=0,95). Emmer wheat contains the same amino acids as modern varieties of wheat. When higher crude protein content in flour and the convertion to 1 000 g of flour taken into account, it is characterised by higher protein content in grain and higher content of amino acids in g/1000 g of flour. Therefore, the grains of emmer wheat can be used for the production of nutritional valuable diet (organic foodstuffs).