

ELECTROPHORETIC ANALYSIS OF ALBUMINS AND GLOBULINS ISOLATED FROM THE WINTER TRITICALE OF DIFFERENT RESISTANCE TO THE GRAIN APHID

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The role of proteins in cereals resistance against the aphids is still poorly recognized. It was discussed if feeding preferences of these insects are related only to their nutritional demands, or rather to their reaction to the toxic compounds in plant tissues. Nowadays it is accepted that both the nutrients and other chemical factors determine their preferences of host plant. Aphid feeding on cereals is limited mainly by the proteins due to their low content, strongly dependent on the plant's age. Therefore, protein availability may be a limiting factor for grain aphid growth and reproduction. Electrophoretic composition of main plant protein fractions may also affect the choice and acceptance of host plant by the aphids, and thus determine its high natural resistance.

The study was done on two winter triticale cultivars of different resistance against grain aphid (*Sitobion avenae* F.). Malno cultivar was relatively resistant, while Tewo was susceptible to that aphid species. The albumins and globulins were isolated from the flag leaves collected in the sixth leaf phase (G.S. 44), according to Chen and Bushuk [1]. Separation of albumins and globulins was done using electrophoresis in discontinuous polyacrylamide SDS gel, according to Laemmli [2]. The gel removed from the glass plates of SE 600 apparatus (Pharmacia) were placed in the stain solution (0.0444% Coomassie Brilliant Blue G-250, 25% isopropanol, 10% acetic acid) for 12 hours. Then, it was washed with distilled water, and transferred to the decolorant solution (10% isopropanol, 10% acetic acid). For all the separated albumin and globulin fractions R_f coefficient and molecular weight were calculated using standard curve plotted according to the data obtained by Weber, Osborn [3].

Electrophoretic analysis in polyacrylamide gel (SDS-PAGE) revealed that Tewo contained 28, and Malno 12 albumin fractions. Molecular weights of Tewo albumins ranged from 3 to 350 kDa, and for Malno from 3 to 260 kDa. The globulin molecular weights ranged from 3-234 kDa for both cultivars. Electrophoretic analysis of albumin and globulin composition revealed the differences in the number of fractions between the cultivars. It was also found that these differences were related to the resistance level of both plants to grain aphid. During infestation, *S. avenae* preferred flag leaves of Tewo cultivar

showing higher content of low and medium molecular weight albumins, and medium weight globulins, comparing to Malno.

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