

Metabolic factors of resistance of bread wheat *Triticum aestivum* L. to fungal infections

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Protective reactions of plants from fungal infections are based on structural features of plants tissue and contents of any metabolites having protective effect.

In some of researches participation in protective mechanisms of products of a fenilpropanoid way of metabolism – lignin, lignan and aromatic glycosides is noted. Also resistance of plants can be connected with degree of a mineralization of tissues of a stalk and a leaf, in particular, with silicon content. Terminal reaction of a fenilpropanoid way – formation of monolignol (aromatic alcohols) – is controlled by family of CAD enzymes (cinnamil alcohol dehydrogenase; EC 1.1.1.195). The of F3 and F4 progenies of spring bread wheat differing on CAD genotypes, received from crossing of a cultivar Novosibirskaya 9 with nulli-tetrasomic lines of a cultivar Chinese Spring. The progenies were landed on the infectious field and showed various degree of susceptibility to brown rust. These plants were used for the analysis of leaves tissues on micromorphological and chemical characters. Large plaques and spot consisting of mineral compounds were observed on the leaf surface of the more resistant plant. On a surface of leaves of a sample, susceptible to brown rust, the high content of salts of calcium whereas on a surface of leaves of steady genotypes silicon oxide prevails is revealed. In steady against defeat by brown rust samples the content of lignin is higher concerning carbohydrates. Leaves of plants unstable to a fungal infection contain less chlorophyll b that can cause an arrest of development and flowering of plants. In leaves of steady genotypes the high content of aromatic acids is revealed. It is possible that the observed differences lead to afflict the plants with leaf rust to such different degrees. In that case these characteristics can be used for diagnostics of potential resistance of cultivars to fungal infection.