

Correlation of Inhibitor Proteinase in Varieties and Lines of Cotton (*Gossypium hirsutum* L.) to Different Geographic Population of *Verticillium dahliae* Klebahn

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Breeding for wilt resistance and its theoretical basis are primarily responsible for increases in cotton yield and fiber quality. Breeding for immunity is the most efficient method in our struggle with infectious diseases.

The success of breeding for immunity depends upon a detailed study of the dynamics of new populations of the pathogen *Verticillium dahliae* Klebahn in different geographic regions and on knowledge of the degree of resistance of cultivated varieties, initial parents and hybrids.

By N. I. Vavilov, the immunity should be considered as a result of interactions between many factors (1964). Indeed, we now recognize that resistance is the result of complex interaction from various defensive mechanisms, both internal as well as external, and many of these are non-specific activities. The various defensive plant reactions include mechanical barriers of various types that are constitutive and induced antibiotic compounds that inhibit pathogen growth and survival and deactivate various toxins and enzymes. In addition, plants can reduce the availability of constituents that are necessary for pathogen growth. These factors are interrelated and cooperative.

To address these questions, we were studying wilt resistance of perspective varieties and lines, and cotton hybrids from specific areas of Uzbekistan to determine the nature of their resistance to different geographic population of *V. dahliae*. In this connection we are investigating more virulent races, strains and isolates of *V. dahliae* on new breeding materials to determine the genetic nature of wilt resistance of these varieties, lines and hybrids that have been obtained by top-crossing of the best varieties and breeding lines of the Uzbek Scientific Research Institute of Cotton Breeding and Cotton Seed (USRICBCS). Specifically we: 1) study the influence of various isolates of the fungus *V. dahliae* on inheritance of resistance with hybrids depending upon the genetic nature of wilt resistance of the parental forms. 2) identify morphological-economic, physiological-biochemical and immune characteristics of parental forms of hybrids of cotton and their interrelations to wilt resistance.

Key words: isolate; *Verticillium*; virulence; varieties and lines; degree of affection; phenotype; proteinase inhibitor