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INHERITANCE OF LATE LEAFSPOT RESISTANCE IN GROUNDNUT MUTANTS

B. N. MOTAGI, M. V. C. GOWDA* AND G. K. NAIDU

Department of Genetics and Plant Breeding, University of Agricultural Sciences, Dharwad 580 005

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ABSTRACT

The mutant VL 1-45 resistant to late leafspot, and its susceptible parent (VL 1) and grand parent (DER) were crossed in three combinations viz., VL 1-45 × VL 1, VL 1-45 × DER and VL 1 × DER. All the hybrids (F_1's) showed intermediate values for disease resistance, which skewed towards the susceptible parents indicating the partial dominance of the gene(s) causing susceptibility. Segregation in the F_2 revealed the presence of a suppressor element (inhibitory) in the original DER parent which was subsequently eliminated by a mutational event and that duplicate complementary recessive genes controlled the late leafspot resistance in the crosses studied. The genotypic constitutions of the parents based on the genetic hypotheses were formulated. Further, there is a need to test for allelism with other known resistant genotypes.

Key Words : Groundnut, mutant, late leafspot, resistance, inheritance.

Late leafspot of groundnut caused by *Phaeoisariopsis personata* (Berk & Curt) V. Arx. can cause total defoliation and greatly reduce groundnut yield. This disease is more prevalent during the rainy season in all groundnut growing areas of India. Over 50% loss in pod and fodder yield has been estimated due to this disease in Karnataka [1]. The present study envisages to discern the genetic basis of late leafspot resistance in the induced mutants of groundnut.

MATERIALS AND METHODS

On mutagenesis with Ethyl Methane Sulfonate (EMS @ 0.5%) three early maturing foliar disease resistant mutants (VL1-28-2, VL1-45 and VL1-110) with desirable pod and kernel features were isolated from the genotype Valencia-1 (VL1), which in itself was a mutant derived from Dharwad Early Runner (DER) [2]. One of the late leafspot resistant mutants (VL1-45) was crossed with its susceptible parent (VL1) and grand

*Corresponding author

which was less than unity. The heritability estimates in narrow and broad senses were 89% and 96%, respectively. Predominance of additive gene action and high heritability suggested that simple pedigree selection procedure would be worthwhile for improving the resistance level against white rust.

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