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ASSOCIATION BETWEEN *ALTERNARIA* BLIGHT DISEASE AND MORPHOLOGICAL ATTRIBUTES IN WHEAT (*TRITICUM AESTIVUM* L.)

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ABSTRACT

Forty seven and thirty nine wheat genotypes, in two separate sets, were used to study correlations of leaf blight (*Alternaria triticina* Prasada and Prabhu) disease with six and three morphological traits, respectively. Days to heading, days to maturity and plant height had significant negative correlations with the disease.

Key words: *Triticum aestivum* L., wheat, *Alternaria* blight, morphological traits, correlations.

Very little information is available on interrelationships between plant morphological attributes and diseases in crops. Brahmachari and Kolte [1], Pal and Hassnain [2], and Mohanty et al. [3] reported associations of various plant morphological components with *Cercospora* leaf spot disease in groundnut, stem rust (*Puccinia graminis tritici* (Pers) Erikss. & Henn.) in wheat and blast disease (*Pyricularia oryzae* Cav.) in rice, respectively. No such information with respect to leaf blight disease in wheat is available. Hence, in the present paper an attempt has been made to study the associations of *Alternaria* blight (*Alternaria triticina* Prasada and Prabhu) disease with different morphological characters in breadwheat.

MATERIALS AND METHODS

Two sets (Set I of 47 genotypes, and Set II of 39 genotypes) of wheat genotypes were sown in single replication with plot size of 3.00 x 0.30 m (one row) in irrigated normal sown situation to estimate correlations between leaf blight disease and nine morphological attributes (Table 1). All favourable conditions were created to ensure incidence of the disease. The disease was recorded in natural conditions under heavy pressure of the pathogen adopting 0–9 scale. Days to heading (75%) and days to maturity (75%) were recorded on plot basis; while the remaining traits were recorded on five plants per plot. For

recording flag leaf width, the maximum width was considered. Grain colour was noted using 1–4 scores (white-1, amber-2, light red-3 and red-4); whereas, for grain texture, 1–3 scores (soft-1, semihard-2 and hard-3) were employed. The correlation coefficients were calculated by the standard formula.

RESULTS AND DISCUSSION

Alternaria blight scores ranged from 4 (K 68, MACS 2067) to 8 (HP 1102, HP 1604, HS 207), indicating heavy disease infection in both the sets. All the morphological attributes also showed a wide range of variation. The wide range of variation for all the morphological traits and *Alternaria* blight indicate high magnitude of variability in the experimental material in both sets.

Correlation coefficients between *Alternaria* blight and different morphological characters are given in Table 1. Days to heading, days to maturity and plant height exhibited significant negative correlations with *Alternaria* blight disease, suggesting that these morphological traits may be taken into consideration while formulating a breeding programme for improving resistance against this disease.

Table 1. Correlation coefficients between *Alternaria* blight and morphological traits in wheat

Trait	Correlation coefficient with *Alternaria* blight (r)
Set I	
Days to heading	−0.334**
Days to maturity	−0.292*
Flag leaf length	0.158
Flag leaf width	0.110
Plant height	−0.306*
Grain number/spike	0.129
Set II	
Grain colour	−0.205
Grain texture	−0.224
1000-grain weight	0.054

*P ≤ 0.05; **P ≤ 0.01.

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