Abstract

The pathosystem maize-huitlacoche has coevolved since prehispanic times until sustaining itself, currently, in a coequilibrated coexistence. Due to the economical importance acquired by this fungus and to the development of techniques for its artificial induction, it is necessary to learn the relationships among the variation of the pathogen, the host, and the environmental conditions under which both prosper. The objective of this research was to estimate, in two agricultural cycles, the variance components of the performance of 12 maternal half-sib maize families combined with 10 isolates of Ustilago maydis D. C. Corda in terms of percentages of severity and incidence and yield of fungus per plant. We observed significant and highly significant differences among families and among isolates. The estimation of variance components of mean square expected values indicated that this significance was attributed mostly to interaction components than to main effects. As a consequence of the high genotype-environment interaction, families and isolates had different performances from one environment to another, this makes it difficult to recommend a specific family-isolate; it would be more appropriate to use a mixture of isolates on a synthetic made from susceptible genotypes.

Keywords

Corn smut, pathosystem, variance components, fungus.