

## ABSTRACT

GENETICS OF BACTERIAL WILT (C.A. *Pseudomonas solanacearum* E. Smith) RESISTANCE IN TOMATO (*Lycopersicon esculentum* Mill.)

Musa El Sharief Mohamed

Forty one genotypes of tomato (*Lycopersicon esculentum* var. *Cerasiforme*) were screened for resistance to bacterial wilt caused by (*Pseudomonas solanacearum*) in the field and in the greenhouse. Two accessions, IA 1308 and IA 1421 were found to be moderately resistant and resistant, respectively.  $F_1$ ,  $F_2$ ,  $BC_1$  and  $BC_2$  progenies of crosses between tomato cultivars Cascade, Caraibe and the two accessions were studied to understand the genetic nature of identified bacterial wilt resistances. The progeny of cross Cascade x IA 1421 revealed a polygenic mode of inheritance with epistatic effects, whereas progeny means of Caraibe x IA 1421 fitted an additive-dominance model with no gene interaction.

The effect of calcium and mulch on the expression of bacterial wilt resistance was also investigated. Results indicated that resistant genotypes can benefit from addition of calcium and the use of mulch in tomato fields.

The seedling age of tomato at transplanting was also investigated using two methods of bacterial wilt inoculation. Results indicated that the stem puncture method of inoculation can eliminate moderately resistant genotypes when performed at early age (3 weeks). On the other hand the root inoculation method was found to be more effective in discriminating genotypes. Seedlings inoculated at an older age had higher survival rates irrespective of the inoculation method. However, seedling age did not reduce the level of infection in the susceptible variety, Cascade.