

ABSTRACT

RESISTANCE GENE ANALOGS IN PEPPER (*CAPSICUM ANNUUM*) AND THEIR RELATIONSHIP TO *PHYTOPHTHORA CAPSICI* RESISTANCE GENES

Phytophthora capsici, the causative agent of *Phytophthora* blight in pepper, causes yearly worldwide reductions in quality and yield. This study presents results in the control of *P. capsici* infection in pepper through the identification of molecular markers closely linked to pepper genes conditioning resistance to *Phytophthora* blight. Two mapping populations of pepper segregating for resistance to *P. capsici* were screened with primers designed from conserved protein domains involved in a resistance response. Sixteen amplified polymorphic loci were observed to segregate in the mapping populations and placed on the pepper linkage maps. Sequence analysis indicates that these markers are not functional genes but contain characteristic motifs of other plant resistance genes. Six of these resistance gene analog markers were observed in close proximity to quantitative trait loci involved in a resistance response to *P. capsici*. These markers could be used to introduce these genes into susceptible pepper varieties and may also serve as starting points for positional cloning of resistance genes.

Linda Marie Donnelly
May 2007