

## **DNA Microsatellite Analysis of Kenyan Isolates of *Rhizoctonia solani* from Common Bean (*Phaseolus vulgaris* L.)**

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### **Abstract**

Seven hundred and fifty bean plant samples with root rot symptoms were collected from farmers' fields during two surveys carried out in Embu district, Kenya. Various fungal pathogens were isolated in the laboratory from these samples; among them were 50 isolates of *Rhizoctonia solani*, which were subjected to pathogenicity tests in a glasshouse. Thirty-six isolates of *R. solani* obtained from beans with root rots were subjected to DNA microsatellite analysis. Five isolates of *R. solani* that cause black scurf of potatoes (*Solanum tuberosum* L.) were also analysed alongside those from the beans. A total of 50 alleles were detected when six microsatellite loci were typed in the 41 samples, with the mean of 8.33 and a range of 3 at locus RB23 to 19 at locus AF513014. The smallest allele size was 129 basepair at locus REI02 and the largest was 297 basepair at locus A Y212027. Microsatellite analysis showed a moderate variation among the isolates from different agro-ecological zones and administrative boundaries (divisions). Phylogenetic analysis revealed 3 major clusters within the population of 41 isolates of *R. solani* from Kenya. Clusters 1, 2 and 3 had 15, 10 and 75% isolates, respectively. However, cluster 3 had 4 sub-clusters and cluster 1 had 2 sub-clusters, while cluster 2 did not have a sub-cluster. There was no relationship between microsatellites and geographical origin of the isolates. This is the first study on the genetic diversity of *R. solani* using DNA microsatellite analysis in Kenya.