ABSTRACT

Bacterial wilt (Ralstonia solanacearum) is one of the major potato diseases in Rwanda. An in vitro study was carried out to identify and characterize the pathogen isolated from three potato cultivars (Kinigi, Kirundo and Gikungu) in Rwanda. This was achieved by cultural and morphological tests on triphenyl tetrazolium chloride (TTC) and casamino peptone glucose (CPG) agar as well as biochemical tests through Gram staining and biovar test. An in vivo experiment was also performed to assess the pathogenicity of those isolates on potatoes. All isolates showed typical morphological traits of virulent R. solanacearum on TTC and CPG media. The test isolates were Gram-negative bacteria. Biovar test confirmed that all the isolates belonged to race 1 biovar 3 of the pathogen. Furthermore, the highest disease severity (DS=100%) and disease incidence (DI=100%) were observed in Gikungu isolate followed by Kinigi (DS=97.33% and DI=98.25) and Kirundo (DS=94.67% and DI=92.61%). From this study, all three isolates were typical R. solanaceraum belonging to race 1 biovar 3 and were all pathogenic to potato plants. Gikungu and Kinigi isolates were highly virulent than Kirundo isolate. Therefore, Gikungu or Kinigi isolates can be used for further studies in plant protection in management of the disease.

Key words: Biovar test, Gram-negative, Gram-positive, pathogenicity test.