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Evaluation of Vitek2 gram-negative identification cards (GN2 card) as a tool for the identification of gram-negative bacteria isolated from diseased tomato plants from Kurdistan Region of Iraq

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Abstract

In any pathogen detection and survey program, time preservation and accuracy of microbial identification are essential features to be selected and approved. In classical methods morphological and growth features of the pathogens obtained through a number of diagnostic tests such as, gram staining and microscopy, biochemical reaction, and indicator hypersensitivity tests. In the last few decades a number of alternative techniques have been developed as diagnostic tools to be used for identification of pathogens in humans, animals or plants. Present study is based on DNA molecular assay and conventional biochemical tests to identify Gram negative bacteria isolated from diseased tomato plants. These bacteria were identified again using the Vitek2 Gram negative identification card technique (GN2 card), developed very recently in France for the identification of clinically important Gram negative bacteria. In this study microscopic examination of 50 bacterial isolates showed that these isolates included both Gram positive and Gram negative bacteria, some of which were bacillus and cococcus. Ten Gram negative bacteria isolates including the three phytopathogenic bacteria were subjected to DNA based molecular and biochemical identification. Results revealed that isolates were identified as *Xanthomonas performance, Pseudomonas sp.*, and *Ralstonia sp.*, All these ten isolates were then subjected to identification using Vitek2 gram negative identification cards (GN2 card). Results of GN2 cards show that this technique either did not identify the bacteria or misidentify. Accordingly it was concluded that GN2 card technique is inappropriate and cannot be used for the identification of plant pathogenic bacteria and needs improvement.

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Keywords

VITEK2, Phytopathogen, Tomato, Bacteria, PCR, Biochemical Analysis.

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