

Molecular characterization and phylogenetic analysis of *Pantoea stewartii* subspecies *stewartii* causing bronzing disease of jackfruit in Malaysia based on *cps* and *hrp* gene sequences

ABSTRACT

Bronzing disease of jackfruit was first detected in plantation areas in Selangor and Pahang, Malaysia. The symptoms included reddish discoloration of the affected fruit pulp and rags, which could reduce the fruit quality and discourage purchasers. In this study, species-specific PCR amplification with primers encoded for *cps* and *hrp* virulence genes showed all bacterial strains isolated from infected jackfruits with bronzing symptoms, displaying a 1.1 kb and 0.9 kb amplicon. Phylogenetic analyses of the *cps* and *hrp* gene sequences clustered all strains to *Pantoea stewartii* subspecies *stewartii* (*P. stewartii* subsp. *stewartii*) reference strains (GenBank accession Nos. AF077292, AF282857, KY965964 and KY965965), with 62 to 80% similarity. Results revealed the presence of these virulence genes in *P. stewartii* subsp. *stewartii* strains is required for pathogenicity of the bacterium in jackfruit.

Keyword: *Pantoea stewartii* subspecies *stewartii*; Bronzing disease; Virulence gene