**Comparison of Erwinia chrysanthemi Metabolic Fingerprinting During Storage With Glycerol-Containing Medium**

Author(s) Nor Ayshah Alia Ali Hassan, Rosnah Hassan, Nuradni Hashim

Institution(s) 1. MARDI, Malaysian Agricultural Research and Development Institute, Strategic Resource Research Centre, MARDI, P.O. Box 12301, 50774 Kuala Lumpur

Abstract:

*Erwinia chrysanthemi (E. chrysanthemi)* is a major bacterial pathogen on many crops worldwide. *E. chrysanthemi* is more frequent in subtropical and tropical climates and has a host range that includes carnation, leopold lily, maize, pineapple, potato and African violet (Toth et. al., 2003). Therefore, in order to study the pathogen, characteristics such as pathogenicity must be consistent even after a long storage. The influence of glycerol-containing medium as a long term storage for *E. chrysanthemi* was investigated by comparing the metabolic fingerprinting of the pathogen. This study was carried out using GN2 MicroPlate™ system which contains 95 most useful carbon sources which gave a characteristic reaction pattern called as a metabolic fingerprint. Reduction of the tetrazolium violet dye included in each well of the microplate which absorbs at 590 nm, was a purple color produced by substrate transformation. The pattern of purple color development on the microtiter plate was used to compare the metabolic capabilities of microorganisms. Three strains of *E. chrysanthemi* (P4, P7, P8) collected from different location were tested. All strains were kept in the glycerol-containing medium starting from the year 2008 and early metabolic fingerprinting was tested. In the year 2010, all strains were once again tested for metabolic fingerprinting. The highest carbon source utilization (42 carbon sources) in the year 2008 was by strain P7 while strain P8 showed highest carbon source utilization (50 carbon sources) in the year 2010. D-galacturonic acid was highly utilized by strain P4 and P7 while D-mannitol was highly utilized by strain P8 in the year 2008. By the year 2010, each strain highly utilized different substrates as strain P4, P7 and P8 used D-saccharic acid, L-aspartic acid and D-glucose-6-phosphate, respectively. All strains utilized more carbohydrates as compared to amides and amines, amino acid, carboxylic acids, polymers and miscellaneous (inosine, uridine, etc) substrates throughout the period. This study concluded that glycerol-containing medium had influence on the changes of metabolic fingerprinting for *E. chrysanthemi* and each strain of this pathogen gave a different metabolic fingerprinting.

**Key words:** Erwinia chrysanthemi, Glycerol, Carbon source, Metabolic fingerprinting