Nitrate non-utilizing mutants and vegetative compatibility groups of Fusarium proliferatum and F. sacchari isolated from rice in the Peninsular Malaysia and Kalimantan, Indonesia

ABSTRACT

A total of 26 isolates of Fusarium proliferatum and F. sacchari were isolated from rice in the Peninsular Malaysia and Kalimantan, Indonesia. Spontaneous chlorate-resistant sectors (CRSs) were recovered from all wild type of both Fusarium species when cultured on two chlorate media. The non-utilizing (nit) mutants were generated as crn (chlorate resistant, nitrate utilizing), nit1, nit3 and nitM based on phenotyping growth-types on diagnostic media with different sources of nitrogen. The nit mutants were paired on minimal medium (MM) for examining the vegetative compatibility. The majority of nit mutants (32.3–46.5%) recovered were nit1. Eight and seven vegetative compatibility groups (VCGs) of F. proliferatum and F. sacchari were identified, respectively. The isolates of F. proliferatum and F. sacchari were genetically diverse as shown by the number and distribution of the VCGs. No strong correlation was observed between VCGs of both species and location.

Keyword: Fusarium proliferatum; F. sacchari; Rice; Vegetative compatibility