

**B-03 Nitrate reduction mutants of *Fusarium oxysporum* f. sp. *niveum*, the causal organism of vascular wilt disease in watermelon**

W P Sapumohotti

Dept of Botany, University of Ruhuna, Matara

Several species of *Fusarium* produce spontaneous, chlorate-resistant sectors on medium containing chlorate, a toxic analogue of nitrate. Most of these sectors are nitrate reduction mutants or *nit* mutants (NRM). The medium has a significant importance for the type of NRM recovery. This study reports the variability of NRM frequency of *Fusarium oxysporum* f. sp. *niveum* (FON), an important pathogen which causes vascular wilt disease in watermelon.

21 strains of FON, isolated from heavily infected watermelon fields in Malaysia, were used to generate NRM on 3 media (potato dextrose agar, potato sucrose agar and minimal medium). Each was amended with 1.5, 3.0 and 4.0%  $\text{KClO}_3$ , and was designated as PDAC, PSAC and MMC respectively. NRM were assigned to one of 3 phenotypic classes (*nit-1*, *nit-3* or Nit-M) by their ability to utilise various nitrogen sources.

The mean values of *nit-1* and *nit-3* per colony on PDAC and PSAC were significantly higher ( $p < 0.05$ ) than their respective values on MMC at each concentration of chlorate. The mean values of Nit-M per colony on MMC were significantly higher ( $p < 0.05$ ) than their respective values on PDAC and PSAC across all concentrations studied.

A study of variability of NRM frequency with different media enables researchers to choose suitable media for different types of NRM recovery in order to compare strains of FON for vegetative compatibility. These techniques, coupled with virulence tests, should provide valuable information on the genetic diversity of natural populations of this fungus.