



**MANAGEMENT OF *FUSARIUM* DRY ROOT ROT BY BIO-CONTROL  
TECHNOLOGY IN SWEET ORANGE CV. SATHGUDI**

**GOPAL K\*, GOPI V, GOURI SANKAR T, SREENIVASULU Y AND AHAMMED SK**

Citrus Research Station, Dr.Y.S.R. Horticultural University, Tirupati – 517502, Andhra Pradesh

\*Corresponding Author: E Mail: [gopalkurubatpt@gmail.com](mailto:gopalkurubatpt@gmail.com)

**ABSTRACT**

Dry root-rot is a major disease affecting both life and production of sweet orange cv. Sathgudi. It is caused by the soil borne pathogen *Fusarium solani*. *Trichoderma* spp. are known for their antagonistic properties against soil born plant pathogens. Among the 36 native *Trichoderma* isolates, TCT<sub>4</sub> and TCT<sub>10</sub> were found best antagonistic activity against *Fusarium*. TCT<sub>4</sub> and TCT<sub>10</sub> are multiplied on sugar yeast extract and prepared talc based formulation for demonstration in farmer orchards at Nalgonda, Prakasam, Ananthapur and Mahaboobnagar districts. The field trial was conducted for three consecutive years from 2009 to 2011. Application of *Trichoderma* isolates (TCT<sub>4</sub> + TCT<sub>10</sub>) 400g + 5kg neemcake + FYM 25kg/tree basin + micronutrient spray was compared with normal farmers practice, drenching copper oxychloride (0.3%) in tree basins. The treatments are imposed twice i.e., in the February and August every year. The results revealed that the treated plots recorded a mean of 83.1% recovered, 12.6% of recovering, 2.9% of not recovered and 1.26% of dried trees. Tree canopy (40.67Cu.m) and fruit yield (128.78kg/tree, 32.11t/ha) were high in treated trees compared to untreated trees (recovered (33.96%), recovering (35.33%), not recovered (16.0%) and dried (14.0%), tree canopy (38.44Cu.m), fruit yield (103.83kg/tree, 25.87t/ha). *Trichoderma* population was high (range of 5.85-13.90x10<sup>3</sup>cfu/g) in treated trees rhizosphere while it was low (0.0-0.1) in untreated control. Diagnostic PCR using the developed SCAR markers clearly distinguished TCT<sub>4</sub> and TCT<sub>10</sub> isolates from other isolates showing the banding pattern at 450 bp and 310 bp, respectively. This technology was found very useful and being evaluated under different agro climatic zones in citrus ecosystems for adaptation.

**Keywords: Sweet Orange, Dry Root Rot, *Trichoderma*, *Fusarium solani*, Bio-control**