



PROMISING SOMACLONES WITH HIGH LEVEL OF RESISTANCE TO FUSARIAL WILT OF BANANA

SCREEDNING PROGRAM

Because of the somaclonal variation occurring in micropropagation, meristem culture plantlets of cv. Giant Cavendish, the major local cultivar, have been used extensively in a fusarial wilt resistance screening program since 1984 in Taiwan. Ten somaclones which exhibit moderate to high level of resistance to the wilt pathogen (*Fusarium oxysporum* f. sp. *cubense*, race 4) have been obtained so far (see following Table). Initially, all of them were off-type with inferior agronomic characteristics such as prolonged growth cycle, too tall stature, drooping leaves, and low yield, etc. hence having no commercial value. Improved variants of these resistant clones were subsequently found among their meristem culture progenies, and the majority of them retained a desirable level of wilt resistance.

RELEASE OF A MODERATELY RESISTANT CLONE : GCTCV-215-1

Among these improved variants obtained thus far, GCTCV-215-1 has the best commercial value which is close to the standard of Giant Cavendish. In an attempt to boost the banana production to meet the demand of both local and export markets, GCTCV-215-1 was soon introduced to farmers and was widely grown in diseased orchards : 700 ha in 1990, over 1,500 ha each in 1991 and 1992. Field surveys indicated that planting of GCTCV-215-1 has substantially reduced the incidence of fusarial wilt in most diseased orchards, occassionally high disease occurred in certain fields which were usually associated with poor drainage. This leads to the need to look for a superior somaclone with a higher level of wilt resistance as a substitute for GCTCV-215-1.



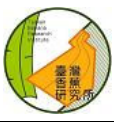
Degree of resistance to fusarial wilt among resistant somaclones derived from Giant Cavendish

Highly resistant (Disease <10%)	Moderately resistant (Disease 10~30%)	Susceptible (Disease > 60%)
GCTCV-40	GCTCV-46	Giant Cavendish
GCTCV-44	GCTCV-53	Robusta
GCTCV-104	GCTCV-62	Grtain Nain
GCTCV-105	GCTCV-201	etc.
GCTCV-119	GCTCV-215	

*Data were obtained from field trials where 2-month-old plantlets of each cultivar or somaclone were challenged by a high inoculum dose at ca. 1,000 propagules/g soil of *Fusarium oxysporum* f. sp. *cubense* race 4.

PROMISING SOMACLONES WITH HIGH RESISTANCE

Selection of such superior somaclones from meristem culture progenies of GCTCV-44, -104, -105, and -119 has made with good propress recently. The salient features of four improved variants recently selected and being under evaluation are described in the following :



GCTCV-44-1
Reaction to wilt
pathogen is being
evaluated;
agronomic
traits similar to
Giant Cavendish.



GCTCV-104-1
Highly resistant;
slightly taller than
Giant Cavendish;
prolonged growth
cycle; fewer fingers
with weaker neck.

GCTCV105-1
Highly resistant;
slightly shorter than
Giant Cavendish;
upright and shorter
leaves; shorter
fingers.



GCTCV-119-1
Highly resistant;
much taller than
Giant Cavendish;
robust
pseudostem;
prolonged growth
cycle; higher yield
and sweeter fruit.

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