March, 1995

Bacterial Wilt Resistance - Greenhouse/Controlled Environment

Clavibacter michiganense subsp. *insidiosum* (McCull)Davis et al [Syns. *Corynebacterium insidiosum* (McCull.) H.L. Jones] J.E. Brummer and S.L Nygaard

PLANT CULTURE

Container ..... Bench or tub with adequate depth for root development (6-8 inches)
Media..... Soil Mix (1:2:1; Top soil: sand: sphagnum/perlite) adequate lime and fertilizer (0:24:24)
Temp/light ..... 24° to 30°C.; 16+ hour daylength
No. of Plants ..... 50-60 per replication
No. of Reps..... 4 replications
Other..... Inoculate with Rhizobium meliloti

INOCULUM CULTURE

Source..... Infected root tissue
Storage..... Washed frozen root tissue
Temperatur ..... .- 10°C .
Storage Life ..... Several years if tissue remains frozen

INOCULATION PROCEDURE

Age of Plant..... 8 weeks old
Concentration ..... 100g ground infected root per IL H2O
Method ..... Clip roots (6-8 cm from crown) and bare root soak
Type of Inoc ..... Bacterial water suspension
Time of Inoc ..... 20 min at 24°C or 12 hours at 16°C.

INCUBATION

Location..... Greenhouse; transplanted into benches or tub
Temp/Light..... 20°-24°C; 16 hour daylength
Culture..... Clip top growth twice at 5-6 week intervals (at bud or bloom) maintain good growth and control insect pests; fertilize (0-24-24) after each clipping.
Spacing ..... 2.5 cm between plants and 6 cm between rows
Age of Rating ..... 12-14 weeks after transplanting

RATING

Plants are removed from benches and tap root is sectioned for rating.

Resistant ..... Symptomless root or less than one-fourth of the stele expressing a yellow-brown discoloration (discrete small spots).

Susceptible..... Discoloration in the root greater than one fourth of the entire root (stele and cortex); dead plant.

CHECK CULTIVARS

	Approximate Expected Resistance	Acceptable Range (%)
Resistant		
Vernal**	40	30-50
Susceptible		
Narraganset**	2	0-5
Sonora**	2	0-5

CORRELATION TO FIELD REACTION

There is a good correlation between results of this test and visual root scores and plant vigor in naturally infested fields.

SCIENTIST WITH EXPERTISE AND SOURCE OF INOCULUM

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REFERENCES

See Bacterial Wilt field protocol; In: STCAC