2-48. Control of Phythophthora Blight of Pepper by grafting

S. T. Hong[1], K. H. Lee[1], J. H. Jeong[1], C. W. Rho[1], J. J. Kim[1], H. T. Kim[2]
[1]Umsung Greenhouse Agricultural Experiment Station, Chungbuk ARES, Umsung Chungbuk, 369-824, Korea; [2]Department of Agricultural Biology, Chungbuk National University, Cheongju Chungbuk 361-763, Korea

Control effect of grafting with rootstocks on Phythophthora blight of pepper was evaluated. The 40~45 day old seedlings of five pepper cultivars, Wangdaeback, Jinmi, Boosa, Samsungcho and Pochunngchun, as a scion were grafted with ten species of root stocks. There wasn't graft incompatibility in all scion-root stock combinations. After 21 days from inoculation with *Phytophthora capsici*, incidence of Phythophthora blight of plant grafted with Kataguruma, R-Safe, R-16, YCM 334 and SCM 334 of rootstocks tested was decreased by 64.6~100% compared to non-grafted plant whose disease severity was 3.7. However, plant grafted with Umsung native and Yeongdong native pepper was more sensitive to Phythophthora blight than non-grafed plant. Control effect by grafting was inversely proportional to virulence of inoculum and not significantly different among scion cultivars used. And resistant reaction of scion against Phytophthora blight was not affect that of scion-root stock plant in this study.

2-49. An efficient method for biological control of soil-borne plant pathogens using chitinolytic microrganisms

Tae Gun Lee, Seur Kee Park
Department of Agricultural Biology, Sunchon National University, Sunchon 540-745, Korea

The effect of biological control on the severity of hot pepper wilt disease was evaluated in the vinyl house with plants cultivated in the nursery soil containing chitin and chitinolytic microorganisms. The chitinolytic microorganisms, *Trichoderma harzianum* and *Chromobacterium* sp. strain C-61, were well survived in the nursery soil containing chitin. The hot pepper damping-off was markedly suppressed in the nursery soil containing chitin and chitinolytic microorganisms. The survival of chitinolytic microorganisms and suppression of damping-off were superior as the amounts of chitin added to the nursery soil increased, but growth of hot pepper was inhibited in the 10% (w/w) chitin treatment. When the plants cultivated in the nursery soil containing 1% chitin and chitinolytic microorganisms were transplanted in the vinyl house, the vegetative growth increased and the wilt disease was reduced as comparison with those of control.

2-50. An efficient method for biological control of soil-borne plant pathogens using chitinolytic microrganisms

Tae Gun Lee, Seur Kee
Park Department of Agricultural Biology, Sunchon National University, Sunchon 540-745, Korea

The effect of biological control on the severity of hot pepper wilt disease was evaluated in the vinyl house with plants cultivated in the nursery soil containing chitin and chitinolytic microorganisms. The chitinolytic microorganisms, *Trichoderma harzianum* and *Chromobacterium* sp. strain C-61, were well survived in the nursery soil containing chitin. The hot pepper damping-off was markedly suppressed in the nursery soil containing chitin and chitinolytic microorganisms. The survival of chitinolytic microorganisms and suppression of damping-off were superior as the amounts of chitin added to the nursery soil increased, but growth of hot pepper was inhibited in the 10% (w/w) chitin treatment. When the plants cultivated in the nursery soil containing 1% chitin and chitinolytic microorganisms were transplanted in the vinyl house, the vegetative growth increased and the wilt disease was reduced as comparison with those of control.

2-51. **Potential of *Curvularia* sp. DBB2003 as mycoherbicide for monochoria.**

Jae Su Kim, Han Young Lee, Seung Sik Jang, Bong Jin Chung
Agricultural Technology Research Institute, Dongbuhannong Agrochemical Co.

Several fungal isolates were isolated from diseased monochoria(*Monochoria vaginalis,* weed of paddy field), which has an resistance to sulfonyl urea(S.U.) herbicide, and were evaluated in the laboratory and greenhouse as potential mycoherbicide. Eight fungi, *Alternaria* sp., *Colletotrichum* sp., *Curvularia* sp., *Paenicillium* sp and etc. were observed in the isolates. Pathogenicity testing were done on the monochorias in the greenhouse. Monochorias were inoculated with suspensions containing conidia of each isolate at the rates of 1.0 x 10^5 conidia/ml and 0.1% Tween 80 with hand-gun sprayer. *Curvularia* sp. and an unidentified fungal isolate caused 90~95% mortality on the monochorias 15~20 days after inoculation. However the other isolates induced slight symptom of disease on the monochorias. In the early stage of disease development sun-burn appearance was shown at the infected site and the last infected leaves and stems were withered to death. Subsequently the pathogenicity on the rice was evaluated with above two effective isolates. From the test an unidentified isolate showed pathogenicity on the rice but *Curvularia* sp., named as DBB2003, didn't. Now the mass production and formulation using *Curvularia* sp. DBB2003 are in progress and the field test will be followed. Combination product with *Curvularia* sp. DBB2003 and chemical herbicide will be more effect to control the monochoria resisted on S.U. herbicide and need to be further tested.