

제1주제 : Host-parasite interaction(1 ~ 44)

- 1-01. The role of defense-related genes and oxidative burst in the establishment of systemic acquired resistance to *Xanthomonas campestris* pv. *vesicatoria* in *Capsicum annuum* (oral)

S.C. Lee, B.K. Hwang.

Laboratory of Molecular Plant Pathology, College of Life and Environmental Sciences, Korea University, Seoul 136-701, Korea.

Inoculation of primary pepper leaves with an avirulent strain of *Xanthomonas campestris* pv. *vesicatoria* induced systemic acquired resistance (SAR) in secondary leaves. This SAR response was accompanied by the systemic expression of defense-related genes, a systemic microoxidative burst generating H₂O₂, and the systemic induction of ion-leakage and callose deposition in the non-inoculated, secondary leaves. Some defense-related genes encoding PR-1, chitinase, peroxidase, PR10, thionin, defensin and zinc-finger protein were distinctly induced in the systemic leaves. The systemically striking accumulation of H₂O₂ and strong increase in peroxidase activity in pepper was suggested to contribute to the triggering of cell death in the systemic micro-HRs, leading to the induction of SAR. Treatment of non-inoculated, secondary leaves with diphenylene iodonium (DPI), an inhibitor of the oxidative burst, substantially reduced the induction of some defense-related genes and subsequently SAR.

- 1-02. Resistant spectrum of major genes including *Pi-9* carried against Korean rice blast fungus. (oral)

Byung Ryun Kim¹, Seong Sook Han, Roh Jae Hwan¹, Seong Ho Choi¹ and Jae Dang Ryu²

¹Crop Environment and Biotechnology Div. National Crop Environment Station, RDA, Suwon 441-100, Korea. ²Plant Pathology Division, National Institute of Agricultural Sciences & Technology, Suwon 441-707, Korea.

Twenty-seven monogenic rice lines harboring major resistant gene for blast were screened to analyze their resistance spectrum to Korean blast fungus population using 190 isolates collected from 1985 to 2002. Especially, the monogenic line containing *Pi-9* gene was screened using 320 isolates. Based on the monogenic lines-blast isolate interactions, the 27 rice lines were classified into 9 groups. The Chinese rice cultivar LTH showed susceptible to all the tested isolates. Those lines IRBLz-Fu, IRBL5-M and IRBL9-W harboring *Pi-z*, *Pi-5*, and *Pi-9*, respectively showed broader spectrum of resistance than those rice lines having *Pi-19*, *Pi-7* etc. Interestingly, the *Pi-9* gene(IRBL9-W) showed resistance to most isolates collected before 2000, but it showed susceptible reactions to 5% and 20% of blast fungus population in 2001 and 2002, respectively. Population of virulent isolates to *Pi-ta*, *Pi-b*, and *Pi-7* also were increased in 2002 compared to those before 2000.