

**D-55. Occurrence of skin sooty dapple disease on oriental pear fruit and pathogenic fungi associated with it.** Young-Seob Park, Ki-Chung Kim, Kyung-Hy Hong and Jeon - Kug Kim. Naju Pear Research Institute, NHRI, RDA

Present paper was described on a new disease of oriental pear fruits. This disease was severely occurred on postharvest fruits during the cold storage, although occurred on leaves and fruits on the trees in the field condition. We designated this disease as the skin sooty dapple of pear fruit. The sooty-dappled fruits were decreased severely the fruit-quality and also occurred various troubles in the foreign exportation. The symptom was presented firstly as the sooty mold lesions on the fruit surface, and blackened lesions were spreaded gradually throughout whole surface during storage period. According to observation with magnifying microscope, mycelial patches on fruit surface were distinguished several types that mycelia networked run and spread simply on fruit surface, that blackish mycelia crowding on the cuticle-segments formed black dot, that dark mycelial mats were formed on lenticels on fruit surface, and that thick mycelia ran sparsely on fruit surface. These appearances were presented singly or into mixture on surface of fruit. Molds isolated most frequently from sooty dapples were various *Cladosporium* spp., and *Leptosphaerulina* sp., *Tripospermum* sp., and *Tiletiopsis* sp. were isolated at low frequency. These fungi were represented same symptoms as those in field by inoculation test on the fruit surface of the pear. *Cladosporium* spp. also were occurred rotting of pear fruit by injection of spore suspension into the cortex of fruit. The fungal mycelia were grown gradually at low temperature (1-5°C), and expended and thickened mycelial mat on fruit surface. Sooty mycelial mat on fruit surface was increased highly after fruits were carried out from cold storage room. Mycelial spreading on fruit surface was accelerated by high humid. *Cladosporium* spp. sporulated abundantly on honey-dew drop produced by pear psylla (*Cacopsylla pyricola*) destructive to pear leaves.

**D-56. Fluorescence and transmission electron microscopy for the diagnosis of phytoplasmal infection on *Castanopsis cuspidata* var. *sieboldii* in Korea.** Jong Kyu Lee<sup>1</sup>, Jae Wook Hyun<sup>3</sup>, and Kwon Sang Yoon<sup>2</sup>. <sup>1</sup>Div. of Forest Resources, <sup>2</sup>Div. of Life Sciences, Kangwon National University, Chunchon, <sup>3</sup>Dept. of Agricultural Environment, National Jeju Agricultural Experiment Station, RDA, Jeju, Korea

*Sieboldii chinquapin*(*Castanopsis cuspidata* var. *sieboldii*), which is a evergreen tree growing around southern areas of Korean peninsula including Jeju, Geoje, Namhae, and Hong-Do islands, has developed witches'-broom symptom in Jeju island. The most prominent symptoms of witches'-broom is consisted of abnormally proliferating branches, yellowish small leaves, upright twigs with lengthened internodes and suppressed lateral buds. Affected tissue sometimes died, leaving trees with dead broomed branches. The diagnosis of phytoplasmal infection was done by fluorescence microscopy using the DNA-binding fluorochrome DAPI(4'6-diamidino-2-phenylindole-2HCl). Examination of cross section of infected petiole samples produced strong fluorescence in phloem cells, which indicates the presence of microorganisms. Observation with

transmission electron microscope revealed the presence of phytoplasma-like cells in sieve tube in cross as well as longitudinal sections of infected petioles. Further studies on more sensitive and informative DNA-based diagnostics, genetic grouping of causing phytoplasma, insect vectors, transmission, and effective managements should be conducted.