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A leaf blight disease caused by a species of Phytophthora has been observed on castor bean plants growing near dwelling houses in Manchon-dong, Daegu since 1993. The first isolate that we have kept was producing papillate, ovoid-obpyriform to obpyriform sporangia with on a simple sympodial sporangiophore from diseased tissue placed on water agar plates. The pure isolate, however, did not sporulate on agar media, and rarely even in water, but produced mycelial swellings and chlamydospores in water. Sporangia measured 26.1-77.4 x 23.2-44.0㎛. Chlamydospores were either terminal or intercalary, and measured 24-29.4㎛ in diameter. Sex organs were not formed in a single culture. In 2003, another pure isolate was isolated from castor bean plants with similar symptoms at the same place. The second isolate was distinct from the first one in that the second isolate was readily and abundantly sporulating on V8 juice agar plates. Sporangia of the second isolate were papillate, ovoid and caducous with a pedicel. Sporangia measured 19.5-48.8 x 17.6-34.3㎛ with 3.7㎛ high papilla and 4.1㎛ long pedicel. No sex organs were formed in a single isolate culture. Both isolates were pathogenic on castor bean plants. Results of the efforts to identify the two species of Phytophthora will be discussed.

4-11. Stem Rot of Strawberry Caused by *Sclerotium rolfsii* in Korea

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A destructive stem rot of strawberry (cv. Akihime) occurred sporadically in farmers' fields around Daegok-Myeon, Jinju City, Gyeongnam province in Korea. The infected plants showed stem and crown rot, sometimes whole plant blighted. White mycelia spread over stems of infected clones and sclerotia formed on the old lesions near to soil surface. The fungus formed white colony on PDA and showed maximum mycelial growth and scleotial formation around 30℃. The fungus usually have many narrow mycelial strands in the aerial mycelium and the width were 4.0~10.0 ㎛. The typical clamp connections were formed on the mycelium. The shape of sclerotia was globoid and 1.0~2.8 ㎜ in size. The fungus was isolated repeatedly from the infected tissues and identified as *Sclerotium rolfsii.* The fungus was inoculated to strawberry and confirmed its pathogenecity. This is the first report on the stem rot of strawberry caused by *Sclerotium rolfsii* in Korea.

4-12. Diagnosis of *Phythopthora* sp. and Its Concentration by Potato Slices in Series Culture Soils.

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Tomato soil pathogens(*Phythopthora* spp.) analyed high rates in series culture soil and existed in culture parts. To make a diagnosis of *Phythopthora* sp. and Its concentration, potato slices were manufactured to a round shape(2.5cm) or retangular form(1x4cm). and then, The potato slices dipped into diagnostic reagents with an antibiotic substance for 2~4hours. Potato slices treated with a few reagents varied into 15cm depths in innoculated soils for 24hrs. Mycelium of the *Phytophthora* root rot fungus, *Phytophthora capsici*, were produced easily on potato slice. We collected many potato slice samples on diseased fields in various area. After storage of 24hrs in 20 ℃ incubater, White mycelium of *phytophthora* sp. formed on potato slice surface. Dilute concentrations of *Phytophthora* sp. was detected very low contents(1×10^1sporangia/g). But expressing *Phytophthora* root rots on potato slice did not developed larger lesions upon storage time in room temperature. These results suggest that the use of potato slice in a series of soil cultural system may still serve as efficient means of diagnosis of *Phytophthora* root rots in the absence of control measures.

4-13. Development of PCR-Based Sequence Characterized DNA Markers for the Identification and Detection, Genetic Diversity of *Didymella bryoniae* with Random Amplified polymorphic DNA(RAPD)

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Gummy stem blight pathogen is very difficult not only to monitor the inoculum levels prior to host infection, and also it is destructive and hard to control in field condition. We have applied RAPD technique to elucidate the genetic diversity of the genomic DNA of *Didymella bryoniae* and also to generate specific diagnostic DNA probe useful for identification and detection. The 40 primers produced clear bands consistently from the genomic DNA of twenty isolates of *Didymella bryoniae*, and two hundred seventy-three amplified fragments were produced with 40 primers. The combined data from 273 bands was analyzed by a cluster analysis using UPGMA method with an arithmetic average program of NTSYS-PC (Version 1.80) to generate a dendrogram. At the distance level of 0.7, two major RAPD groups were differentiated among 20 strains. RAPD group (RG) I included 8 isolates from watermelon except one isolate from melon. RAPD group (RG) IV included 12 isolates from squash, cucumber, watermelon and melon.. In amplification experiment with SCAR specific primer RG1F-RG1R resulted in a single band of 650bp fragment only for 8 isolates out of 20 isolates that should be designated as RAPD Group I. However, same set of experiment done with RGIIF-RGIIR did not result in any amplified product.. Our attempts to detect intraspecific diversity of ITS region of rDNA by amplifying ITS region and 17s rDNA region for 20 isolates and restriction digestion of amplified fragment with 12 enzymes did not reveal polymorphic band. In order to develop RAPD markers for RGIV specific primer, a candidate PCR fragment(≒1.4kb) was purified and Southern hybridized to the amplified fragment RGIV isolates. This promising candidate probe recognized only RGIV isolates