

특강3

Characterization of a Pathosystem of Pepper (*Capsicum annuum*) Fruits and the Anthracnose Fungus *Colletotrichum gloeosporioides* Interactions

Boung-Jun Oh*, Moon Kyung Ko, Young Soon Kim, Kwang Sang Kim, Igor Kostenyuk, and Hye Kyung Kee

Kumho Life and Environmental Science Laboratory,
Korea Kumho Petrochemical Co., Ltd., 1

In previous study, we reported that the anthracnose fungus, *Colletotrichum gloeosporioides*, interacted incompatibly with the ripe fruit of pepper (*Capsicum annuum*). But the fungus interacted compatibly with the unripe-mature fruit. Fruit ripening represents a genetically synchronized process that involves developmental events unique to plant species. Generally, ripe fruits are susceptible to pathogen attack. Nevertheless, fruit as one of the reproductive organs of the plants must be protected from pathogens to maintain its integrity and seed maturation. The infection of *C. gloeosporioides* is achieved through conidial germination, appressorial formation, and infection hyphae formation which are necessary for subsequent cuticular penetration. In the microscopic observation of fungal behaviors, high levels of the formation of appressorium and infection hypha, and longer infection hypha were observed on the unripe fruit than on the ripe fruit in early fungal infection process. Therefore, it is of interest to study about plant responses when the fungus forms appressorium and infection hypha during differential interactions. To investigate the activation of defense-related genes from the incompatible-ripe pepper fruit upon *C. gloeosporioides* infection, we isolated genes by using mRNA differential display. We report the characterization of an incompatible ripe fruits and *C. gloeosporioides* interaction with gene cloning, enzymatic study, and transgenic plants etc.

Keywords: *Capsicum annuum*, *Colletotrichum gloeosporioides*, fruit ripening, incompatible interaction.