Gray Mold of Grafted Cactus Caused by Botrytis cinerea in Korea

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Grafted cactus, produced by grafting two different cactus species including photosynthetic stocks (mostly Hylocereus trigonum) and non-photosynthetic scions (usually Gymnocalycium mihanovichii or Chamaecereus silvestrii), is one of the most popular exporting ornamental plants, comprising about 70% of the world trading market (Song et al., 2009a, 2009b). Since the grafted cactus is cultivated in greenhouses with warm temperature and high humidity during the whole growing season, several diseases especially caused by fungi such as Bipolaris cactivora, Colletotrichum gloeosporioides (anamorph of Glomerella cingulata), Fusarium oxysporum, and Alternaria alternata are frequently found in the cactus farms in Korea (Chang et al., 1998; Choi et al., 2010; Hyun et al., 1998; Kim et al., 2000).

A stem disease of G. mihanovichii caused by a fungus was observed in 2010 in several greenhouses especially with high humidity at Goyang, Gyeonggi province, the major cactus-growing area in Korea. Its occurrence was not prevalent and found mostly in mature (old) cactus plants. Characteristic symptoms were initial black or brown spots that were enlarged with time to become dark brown lesions (identical to those found in the cactus greenhouses) was caused by a fungus was isolated from the diseased area to fulfill the Koch’s postulates. Therefore, the cactus disease was caused by B. cinerea whose identity was confirmed on the basis of its morphological and molecular characteristics. This is the first report of gray mold by B. cinerea in the grafted cactus. As found no other fungal and bacterial pathogens previous known to occur in G. mihanovichii, especially B. cactivora causing the similar cactus stem rot, B. cinerea should be the primary causal agent for the disease development.

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References

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Fig. 1. Gray mold on a mature grafted cactus (Gymnocalycium mihanovichii) caused by Botrytis cinerea, showing the symptoms on the stems with natural infection (A) and induced by artificial inoculation (B), the fungal colony with black sclerotia (arrows) grown for 30 days on PDA (C), and light microscopy of the fungal conidiophores (D, bar 10 µm) and conidia (E, bar 20 µm) (D, E).