Occurrence of *Dumontinia tuberosa* in Korea

Wan Gyu Kim^{1*}, Soon Ja Seok², Min Woo Lee³ and Sung Kee Hong¹

¹Agricultural Microbiology Division, National Academy of Agricultural Science (NAAS), Rural Development Administration (RDA), Suwon 441-707, Korea

²National Agrobiodiversity Center, NAAS, RDA, Suwon 441-707, Korea

³Gongju Agricultural Technology Center, Gongju 314-862, Korea

(Received May 29, 2009. Accepted June 17, 2009)

Thirty-seven single spore isolates were obtained from specimens of ascomycetous fruiting bodies collected from Mt. Suri, Anyang in Korea. The fungal specimens and isolates were identified as *Dumontinia tuberosa* based on their morphological and cultural characteristics. This is the first record of this fungus occurring in Korea.

KEYWORDS : Ascomycetes, *Dumontinia tuberosa*, Fruiting body, Identification

Unusual ascomycetous fruiting bodies were observed near *Anemone raddeana* Regel plants grown in Mt. Suri, Anyang in Korea during a survey of mushrooms performed in April of 2009 (Fig. 1A and 1B). The fruiting bodies appeared as apothecia that were stipitate, cupulate, and borne on sclerotia. Therefore, the fruiting bodies were collected and their morphological characteristics were

examined. Specially, 37 single spore isolates were obtained from the specimens and cultured on potato dextrose agar (PDA), after which their cultural characteristics were examined. The fungal specimens and isolates were identified as *Dumontinia tuberosa* (Bull. : Fr.) Kohn based on their morphological and cultural characteristics, which were consistent with those described by Kohn (1979). The

Fig. 1. Occurrence of *Dumontinia tuberosa* in Mt. Suri. A and B, apothecia produced near *Anemone raddeana* plants; C-E, apothecia produced from sclerotia (each scale bar = 20 mm).

*Corresponding author <E-mail : kimwg5121@korea.kr>

Fig. 2. Anatomical features of *Dumontinia tuberosa* collected from Mt. Suri. A, a cross section through a sclerotium showing black rind cells and hyaline medullary cells (scale bar = 20 μm); B, a cross section through the flank of an apothecium showing ectal excipulum (scale bar = 40 μm); C, asci and paraphyses (scale bar = 40 μm); D, an ascus including eight ascospores (scale bar = 40 μm).

fungal specimens were deposited in the HCCN (Herbarium Conservation Center of NAAS, RDA, Suwon, Korea).

Apothecia are produced in groups of one to eight from a yellowish brown to dark brown, goblet-shaped sclerotium (Fig. 1C~1E). Disks are 9~30 mm broad and deeply cupulate. Stipes are 10~100 mm long and 1~3 mm thick. The sclerotia that produce the apothecia are black, globose to irregularly shaped, 6~35 $\times$ 3~22 mm, with a black outer rind and white inner context (Fig. 2A). Cross sections through the flanks of the apothecia showed that the ectal excipulum consists of globose cells, asci and paraphyses (Fig. 2B and 2C). Asci are cylindrical, contain eight spores and measure 127.5~162.5 $\times$ 7.5~11.0 μm (Fig. 2D). Ascospores are hyaline, ellipsoid and measure

11.0~20.0 $\times$ 5.5~8.0 μm . Colonies of the fungal isolates grown on PDA consist of whitish to grayish mycelia and black, oblate to elongated oblate sclerotia that measure 3~19 $\times$ 3~12 mm (Fig. 3). The optimum temperature for mycelial growth of the fungus on PDA was 20~24°C.

Kohn (1979) named *Dumontinia tuberosa* (Bull. ex Mérat) Kohn and recorded *Sclerotinia tuberosa* (Hedw.) Fuckel as a synonym of the fungus. The fungal name was corrected later to *Dumontinia tuberosa* (Bull.: Fr.) Kohn as a sanctioned name for the authors of the fungus (Korf and Kohn, 1980). In the present study, *D. tuberosa* was found for the first time in Korea. It has been reported that *D. tuberosa* is pathogenic on the rhizomes of some *Anemone* spp. (Cannon *et al.*, 1985; Kohn, 1979). The authors also found that the fungus occurs commonly near *A. rad-*

Fig. 3. A 20-day-old colony of *Dumontinia tuberosa* grown on PDA at 22°C.

deana plants during a survey of Mt. Suri. However, further study is needed to confirm the pathogenicity of *D. tuberosa* on *A. raddeana* plants.

References

- Cannon, P. F., Hawksworth, D. L. and Sherwood-Pike, M. A. 1985. The British Ascomycotina. An Annotated Checklist. Commonwealth Mycological Institute, Kew, Surrey, England.
- Kohn, L. M. 1979. A monographic revision of the genus *Sclerotinia*. *Mycotaxon* 9:365-444.
- Korf, R. P. and Kohn, L. M. 1980. Later starting point blues. II. *Dumontinia tuberosa*: the thorny thickets of synonymy and some examples of nomenclatorialism. *Mycotaxon* 11:381-395.