

NEW DISEASE REPORT

First report of powdery mildew caused by *Podosphaera phaseoli* (syn. *Sphaerotheca phaseoli*) on cowpea (*Vigna sinensis*) in Turkey

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During the summer of 2003, typical symptoms of powdery mildew were observed in many cowpea fields assessed in Hatay Province, Turkey. White, epiphytic mycelia and conidia, characteristic of a powdery mildew, were present on leaves, stems and inflorescences. The plant tissue underneath the mycelial patches was purplish in colour. Mycelial growth was amphigenous, thick, forming irregular white patches, sometimes effused to cover the whole leaf surface, and had poorly developed nipple-shaped single appressorium. Simple straight conidiophores ($115\text{--}190 \times 10\text{--}13 \mu\text{m}$) developed mostly singly from a hyphal cell, arising from the upper part of mother cells, having the basal septum at the branching point of the mycelium with a sharp constriction. Each conidiophore had three to eight barrel-shaped conidia formed in chain. Conidia with fibrosin bodies were $28\text{--}42 \times 15\text{--}18 \mu\text{m}$ in size and germinated below the shoulder by producing a simple germ tube. Dark brown ascomata, found on leaves and stems as embedded in the mycelial felt, were spherical, gregarious to subscattered and measured $85\text{--}105 \mu\text{m}$ in diameter. Appendages (six to 15) were myceloid, arising from the lower half of the ascomata, brown, paler upward and $6\text{--}8 \mu\text{m}$ wide. The ascomata contained single ascus ($65\text{--}95 \times 55\text{--}67 \mu\text{m}$). The ascus contained eight ellipsoidal to ovoid ascospores ($18\text{--}24 \times 12\text{--}16 \mu\text{m}$). On the basis of morphological characters of the conidial stage and teleomorph, the fungus was identified as *Podosphaera phaseoli* (syn. *Sphaerotheca phaseoli*) (Braun & Takamatsu, 2000; Shin, 2000). Pathogenicity tests were conducted on 4-week-old cowpea plants, cv. Libye, by shaking fresh conidia from naturally infected plants onto the healthy

leaves. Inoculated plants were kept in a moist chamber (100% RH) for 2 days and then maintained a growth chamber at $22 \pm 2^\circ\text{C}$, 75% RH with a 16 h photoperiod. After 7–10 days, inoculated plants developed powdery mildew symptoms, which were similar to those observed on naturally infected plants.

This is the first report of powdery mildew on cowpea in Turkey. Previous reports list *P. phaseoli* on *Vigna* spp. in Korea (Shin & La, 1992; Lee *et al.*, 2002) and the same species *P. phaseoli* was also reported on several related host plants such as *Phaseolus* spp. and *Rhynchosia volubilis* (Shin, 2000). Although bean is the one of the alternative hosts of the disease agent and grown in nearby cowpea plants in the same field, no disease symptoms were observed on bean plants.

References

- Braun U, Takamatsu S, 2000. Phylogeny of *Erysiphe*, *Microsphaera*, *Uncinula* (Erysiphaceae) and *Cystotheca*, *Podosphaera*, *Sphaerotheca* (Cystothecaceae) inferred from rDNA ITS sequences – some taxonomic consequences. *Schlechtendalia* 4, 1–33.
- Lee SY, Hwang SJ, Lee SB, 2002. Occurrence of powdery mildew on mung bean (*Vigna radiata* L.) caused by *Sphaerotheca phaseoli*. *Research in Plant Disease* 8, 166–70.
- Shin HD, 2000. *Erysiphaceae of Korea*. Suwon, Korea: National Institute of Agricultural Science and Technology.
- Shin HD, La YJ, 1992. Addition to the new records of host plants of powdery mildews in Korea. *Korean Journal of Plant Pathology* 8, 57–60.

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