

DISEASE NOTE

FIRST REPORT OF DAMPING OFF OF *VACCINIUM BRACTEATUM* CAUSED BY *CERATOBASIDIUM* sp. FROM EASTERN CHINA

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Oriental blueberry (*Vaccinium bracteatum* Thunb.) is a source of a traditional Chinese herbal medicine, having anti-fatigue and antioxidant activity. From 2012 to 2013, blueberry seedlings with symptoms of damping off were observed in seven commercial crops in Zhangzhu county, Yixi City, Jiangsu Province, China with a disease incidence of approximately 60%. Infected seedlings showed water soaked lesions on the stem with a brownish halo in the center, which later turned into root rot. Infected seedlings wilted and died prematurely. About 30 infected seedlings were collected, cut into 50 pieces, surface-disinfested with 4% sodium hypochlorite, rinsed 3-times with sterile distilled water, and placed onto potato dextrose agar plates kept at 28°C for 3 days. About 20 fungal isolates were obtained.

This fungus formed white colonies with abundant aerial mycelium, which was septate, branching at right angle, with distinct constriction at the origin of branching. 3-day-old hyphae were 4-6 µm in size. It did not produce conidia. Hyphal cells were stained with DAPI and all the isolates were binucleate. Total genomic DNA was extracted from the mycelial mat using CTAB. Amplification of ITS using primers ITS1/ITS4 yielded a ca. 670 bp product (GenBank Accession No. KP233903). The sequences obtained were 99% similar to *Ceratobasidium* sp. AG-U isolate (GenBank Accession No. HQ269825.1 from Azalea) (Copes *et al.*, 2011). In pathogenicity tests, blueberry seedlings were inoculated with pure cultures of eight isolates of *Ceratobasidium* sp. Three 8 mm-disks of mycelia grown on PDA were placed around the roots of each plantlet. There were four replicates of 3-month-old seedlings for each treatment; the experiment was conducted twice. Eight control seedlings were inoculated with three PDA plugs. Both inoculated and non-inoculated seedlings were placed in glasshouse at 28°C. Damping-off symptoms developed in the stems and roots similar to those observed in the field. Control seedlings remained healthy. The fungus was re-isolated from the infected seedlings and confirmed to be *Ceratobasidium* sp. based on morphological characteristics and rDNA-ITS sequence. This pathogen has a worldwide distribution and a wide host range. To our knowledge, this is the first report of *Ceratobasidium* sp. causing oriental blueberry damping off in the world. Oriental blueberry production is developing quickly in China; therefore, appropriate and effective disease management strategies of oriental blueberry should include the disease incited by *Ceratobasidium* sp.

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ALGAL LEAF SPOT OF *LANSIUM PARASITICUM* CAUSED BY *CEPHALEUROS* sp. IN THAILAND

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Algal spot symptoms appeared on *Lansium parasiticum* (Osbeck) Sahni & Bennet leaves in late August, 2014 when rainy and warm weather favoured algal growth. The disease was found in 20% of surveyed *L. parasiticum* plants in Songkhla, Thailand, showing an orange to brown small, 1-4 mm circular scurf on the leaves. Thalli were sub-cuticular with sub-epidermal growth, and consequent necrosis of epidermal cells in the leaf tissue. Filamentous algal cells were short and cylindrical, 8-15×3-7 µm, with length/width ratio 1:1.1-4. Setae were short filaments with two to five cells, 100-180 × 3-7 µm. Sporangioophores, on the upper leaf surface, developed from the thalli of the algal colony. Sporangia were elliptical, 5-10×5-8 µm. Gametangia were spherical to elliptical (8-15×3-7 µm), produced beneath the cuticle. Gametes were spheroidal (7-10×7-9 µm), zoospores were elliptical (5-10×5-8 µm). These morphometric traits were consistent with *Cephaleuros* sp. (Thompson and Wujek, 1997). The sequence of the 18S rDNA (GenBank accession No. LC086008), showed 94% identity to *C. virescens* (KM020142) and *C. parasiticum* (KM020146). In pathogenicity test, leaves of healthy *L. parasiticum* were wounded by rubbing with celite, inoculated by spraying with a suspension of algal thallus fragments (0.1 g/ml fresh thalli w/v) (Suto and Ohtani, 2011). Algal infection was evident after three months when small thalli (0.2 - 0.6 cm diameter) were observed. Reisolated algae were consistent with those originally isolated. To our knowledge, this is the first report of algal leaf spot of *L. parasiticum* caused by *Cephaleuros* sp.

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