

First Report of *Rhizoctonia Solani* Kühn AG 1-IA causing Web Blight of Summer Savory (*Satureja hortensis* L.)

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SHORT COMMUNICATION

In July 2019, various disease symptoms, including root and basal stem rot and large leaf necrotic lesions were observed on individual summer savory (*Satureja hortensis* L.) plants grown in a kitchen garden in the village of Aleksandrovo, Lovech District, Central North Bulgaria. The symptoms rapidly progressed until the above ground plant parts decayed, turned brown and eventually died.

Following the standard procedures, small tissue segments (2 mm - 3 mm) were cut from the respective plant parts, surface sterilized by dipping in 70% ethanol for 60 seconds, rinsed three times with sterile distilled water, then blotted dry between two sterile filter papers and placed on 90 mm petri plates containing nonselective media such as Oatmeal (OA), Potato Dextrose (PDA) or Water agar (WA). Plates were incubated at 25°C - 26°C in the dark for 10 days to 14 days. *Rhizoctonia spp.* isolates were readily obtained from all examined plants with disease symptoms as well as from root tissues of symptomless savory plants.

Using taxonomic references by Sneh et al. [1], all isolates were identified as *Rhizoctonia solani* on the basis of colony morphology and microscopical characteristics of mycelia. Incubated on PDA, the fungus produced colonies with

abundant, initially colorless or white mycelium, which turned light brown with age. Microscopic observations revealed septate hyphae, 4.24 µm to 4.87 µm wide, tending to branch at 90° angle, although acute angle branching often occurred. Characteristically of *R. solani*, branches were slightly curved, had a constriction at the point of origin, and both the main and branching hyphae formed a septum near the branching junction. Numerous, scattered within the colony, dark brown sclerotia, 1 mm to 3 mm in diameter, developed within 14 days after incubation at 25°C - 26°C on PDA. According to hyphal anastomosis reaction [2] between each savory isolate paired on 2% WA in petri plates with a tester isolate of AG 1 (subgroups -IA, -IB, and -IC), AG 2-2, AG 3, AG 4 or AG 6, all savory isolates of *R. solani* were assigned to AG 1-IA [3,4].

For pathogenicity test, all *Rhizoctonia spp.* isolates were cultured for 14 days in Petri plates on OA at 25°C - 26°C in the dark. When cultures filled the plates, the content of each plate was mixed with 1L of sterilized soil which was then placed in individual pot. Each pot was planted with three 60-days-old savory plants, cultivar Mestna. Six replicate pots were used for each isolate. Six pots prepared

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identically, but without pathogen served as a control. Development of symptoms on the inoculated savory plants was tracked for one-month period. The infected plants exhibited root rot, stem and leaf lesions, identical to those observed in the field. The observed symptoms were consistent with Rhizoctonia web blight caused by *R. solani* AG 1-IA in winter savory (*Satureja montana L.*), first diagnosed in Italy in 2010 [5]. The inoculated pathogens were reisolated from symptomatic plants, thereby fulfilling Koch's postulates. None of the control plants developed

symptoms of the disease. The pathogenicity test was carried out twice with similar results.

Rhizoctonia solani, as a causative agent of root and stem base necrosis of summer savory (*Satureja hortensis L.*), was first identified in Poland in 2010 [6]. In our literature search we found no other observation of a disease related to *R. solani* in this crop. To the best of our knowledge, this is the first report of the disease caused by AG 1-IA of *R. solani* in summer savory (*S. hortensis*) in Europe and elsewhere.

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