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First Report of *Embellisia allii* Causing Skin Blotch and Bulb Canker on Garlic in Montana

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Garlic (*Allium sativum* L.) is a popular plant in home gardens and farms where it is typically grown on a small scale for personal use, local fresh markets, and/or planting stock. In December 2011, a sample of garlic from a home garden in Missoula Co., MT, was received at the MSU Schutter Diagnostic Lab. Outer scales were dark, decayed, and sloughing off the bulbs (Fig. 1). Spores were visible when viewed at 100× magnification under a dissecting microscope (Fig. 2). Wet mounts of the scale tissue revealed relatively large, dark conidia with two to five transverse septa and rounded apical cells. Conidia were borne singly on geniculate conidiophores. Similar samples were received in 2012 from Sanders and Lake Counties in northwestern Montana. Based on morphological characteristics, the fungus was identified as *Embellisia allii* (Campan.) E.G. Simmons 1971 (synonymous with *Helminthosporium allii* Campan. 1924) (2).

Fig. 1. Dark, decayed, and sloughing outer scales of garlic bulb infected with *E. allii*. Photo by L. Skoglund.

Fig. 2. Spores of *E. allii* on garlic scale as viewed with a dissecting microscope (100×). Photo by L. Skoglund.

The pathogen was isolated from infected garlic samples received by the Schutter Diagnostic lab and grown on the artificial medium, potato dextrose agar (PDA). After 6 days under ambient light conditions at a temperature of approximately 20°C, colonies were dense, grey to olive-brown to black, with diameters averaging 40 mm. Conidiophores were geniculate and hyaline to brown with conidia borne singly (Fig. 3). Conidia measured between 23-45 × 10-14 µm; were generally smooth, obovoid or cylindrical, with round apical cells and a distal end that is occasionally elongated (Fig. 3). Conidia had 2-7 (average 4-5) thick, transverse septa and occasionally 1-2 oblique septa (Fig. 3). Chlamydospores were not observed on PDA-grown colonies, although they are known to develop as colonies mature (3).

Fig. 3. Geniculate conidiophores of *E. allii* showing septate conidia. Photo by E. Lonergan.

E. allii has been reported on garlic worldwide (1). It was most recently reported in California in 2012 (3). *E. allii* is not restricted to garlic and has been shown to also infect leek and onion (3,4). This is the first report of *Embellisia allii* causing bulb canker in garlic in Montana.

Literature Cited

1. Dugan, F. M., and Crowe, F. J. 2008. *Embellisia* skin blotch and bulb canker of garlic. Pages 17-18 in: *Compendium of Onion and Garlic Diseases and Pests*, 2nd Edn. H. F. Schwartz and S. K. Mohan, eds. American Phytopathological Society, St. Paul, MN.
2. Ellis, M. B. 1976. *More Dematiaceous Hyphomycetes*. Commonwealth Mycolog. Inst., Kew, UK.
3. Koike, S. T., and Rooney-Latham, S. 2012. First report of *Embellisia allii* causing skin blotch and bulb canker on garlic in California. *Plant Dis. Notes*. 96:291. doi:10.1094/PDIS-08-11-0684.
4. Mishra, R. K., Sharma, P., Singh, S. and Gupta, R. P. 2010. First report of *Embellisia allii* causing skin blotch or bulb canker of onion from India. *Plant Pathology* 59: 807. doi:10.1111/j.1365-3059.2009.02250.x