First Report of White Rust of *Lunaria annua* Caused by *Albugo candida* in North America

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Money plant (*Lunaria annua* L.) is grown as an ornamental landscape plant in flower beds and borders, and is used in dried flower arrangements. This report provides the first documentation of the occurrence of the causal agent of white rust, *Albugo candida* (Pers.) Kuntze, on *L. annua* in North America, and describes symptoms of the disease and morphological features of *A. candida* useful for identification.

In November, 2000, diseased *L. annua* leaves from a commercial seed grower in Willamette Valley, OR, were submitted to Oregon State University for diagnosis. Approximately 25% of the plants in the 0.2-hectare planting exhibited numerous, small necrotic leaf spots diagnosed as white rust caused by *A. candida*. In September of 2001, the same grower noted a 100% infection of the plants. Lesions were present on siliques and plants exhibited overall poor growth. In June, 2003, white rust was observed on volunteer plants of *L. annua* growing in two private gardens in Seattle, King County, WA, and one in Tacoma, Pierce County, WA.

Disease symptoms included white to cream-colored, blister-like lesions on leaves and siliques (Figs. 1, 2). Infected plants in the seed production field, but not landscape plants, also exhibited stunting. Identification of the pathogen *A. candida* was based on host family and morphology of sori, sporangiophores, sporangial chains, and sporangia (1,5). Free-hand sections of lesions revealed sori in which ventral surfaces included densely-packed palisades of sporangiophores (Fig. 3). Sporangiophores ranged from curved or bent to nearly straight, were cylindrical to tapering, measured 29.5-33.5 × 13-13.5 µm, and produced chains of sporangia joined by connectives typical of *Albugo* spp. (5). Sporangia (Fig. 4) were nearly spherical to angular in outline, subhyaline, frequently vacuolate, exhibited finely punctate walls, and measured (14.5-)16-19 (-19.5) × (12.5-)14-16(-17.5) µm.

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**Fig. 1.** Sori produced by *A. candida* on silique of *L. annua*.

**Fig. 2.** Close-up photograph of sori produced by *A. candida* on leaf surface of *L. annua*. 
White rust of *L. annua* appears to have attracted little attention from plant pathologists and mycologists. Fungal databases at the USDA-ARS Systematic Botany and Mycology Laboratory (2) list only one reference (3) which simply noted the occurrence of the pathogen on this host in Scotland. However, finding the disease in three sites in western Washington and a seed production field in Oregon suggests that the pathogen also may occur in other regions of North America. This disease is of concern to seed growers because in other crops, such as seed radish, white rust spores produced on the crop during the growing season have contaminated harvested seed (4). Although it is possible that volunteer *L. annua* plants could serve as alternative hosts in disease cycles involving other Brassicaceae, research on *A. candida* strains from other hosts suggests a high degree of host specificity in this pathogen (5).

**Literature Cited**