

# Host Flower Infection of *Silene latifolia* by *Microbotryum violaceum*

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## ABSTRACT

Certain fungi can infect host plants and thereby cause sterility of the host (Hood et al., 2010). One such fungal parasite, *Microbotryum violaceum* (commonly known as anther smut), has host specificity to plants of the family Caryophyllaceae. Anther smut takes over the host reproductive system by inhibiting sex-organ development in flowers, and the plant produces fungal spores in place of its normal reproductive structures (Hood et al., 2010). Spores can then be spread to nearby hosts through wind pollinators (Hood et al., 2010). This experiment focuses on *Silene latifolia* plant populations growing near Zagreb, Croatia. Our research tests for phenotypic differences between infected and healthy flowers. To do this, we measured the size of healthy and infected flowers of both sexes. Additionally, we observed the proportion of infected flowers over time on individuals to uncover temporal trends of the smut infection. We found that all flower parts, regardless of plant sex, are significantly smaller in smut-infected flowers. After observing proportions of infected flowers, we found that the ratio of infected to healthy flowers increased over time. Our findings suggest that smut infection of *S. latifolia* causes changes in plant energy allocation. We propose that the smaller flower size could be the result of increased energy needed for *M. violaceum* spore production. This hypothesis could be tested with additional research. The increasing proportion of smutty flowers on an infected individual over time is likely caused by the spread of the infection throughout the plant.

**KEYWORDS:** *Microbotryum*, *Silene*, anther smut, infection proportion, energy allocation

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