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Allelopathic potential of *Artemisia biennis* (biennial wormwood)

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ABSTRACT

In this study, *Artemisia biennis* was seeded in a greenhouse and raised to an average plant height of 100 cm. Aboveground plant portions were harvested and partitioned into leaves and stems, and dried; while roots were either removed from some soil (soil – roots) or left in soil (soil + roots). Greenhouse studies were conducted to evaluate the allelopathic potential of *A. biennis* leaves, roots, and stems; and soil – roots, and soil + roots on *Solanum melanocerasum* plant height and fresh weight plant^{-1}. When 5 g of root and stem biomass were added to soil, S. melanocerasum plant height and fresh weight plant^{-1} was reduced by 75 and 88%, respectively. In contrast, 5 g of leaf biomass caused an increase in *S. melanocerasum* plant height and fresh weight plant^{-1} by 35% and 43%, respectively; whereas, 20 g of leaf biomass depressed both variables by 50% and 65%, also respectively. Plant height was more suppressed when *S. melanocerasum* grew in soil − roots as opposed to soil + roots, whereas fresh weight plant^{-1} was similar between soil treatments. *S. melanocerasum* plant height was reduced by 70 and 55% when grown in soil − roots and soil + roots, respectively. In contrast, S. melanocerasum fresh weight plant^{-1} was reduced by 76% in both soil treatments. The reduction in *S. melanocerasum* plant attributes in this study is indicative of the allelopathic potential of *A. biennis*. Furthermore, *A. biennis* allelopathy is differenttially expressed among plant parts, primarily in roots. This may explain how *A. biennis* is capable of dominating a habitat once it becomes established. The presence of extractable compounds with herbicidal activity could increase the potential usefulness of *A. biennis*.

KEYWORDS

Allelopathic Potential; Artemisia Biennis; Biennial Wormwood; Garden Huckleberry; *Solanum Melanocerasum*

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