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### *Effect of Carbon on Tanacetum vulgare Allelochemicals*

The common tansy (*Tanacetum vulgare*) is a plant species native to Europe, but grows commonly in North America. In Colorado, the common tansy is a Class B Noxious Weed. Allelochemicals are chemicals produced by certain species to limit the growth of organisms around them. The purpose of this experiment was to find if *Tanacetum vulgare* produces allelochemicals, and if it does, if adding carbon to the soil can reduce the effects of those allelochemicals. The hypothesis for this experiment was that the common tansy does produce allelochemicals and the addition of carbon to the soil would nullify the effects of the allelochemicals. The first step in this experiment was to dig up rhizomes from a thriving colony of *Tanacetum vulgare* and replant them in nine, one-gallon containers. Next, Eighteen radishes were germinated four-inch by four-inch containers with soil with 100ml of carbon for every liter of soil. Eighteen radishes were also germinated in soil without carbon. After germination, two thirds of each of the germinated radishes from both the carbon soil and no carbon soil were placed in arrays with the common tansy. These plants were then watered by pouring water on the tansies and letting the water run down into a shared water tray. The other one third of the radishes were set up in an array without tansies as a control to prove that the carbon did not effect the growth of the radishes. After five weeks of growth (once all the radishes had two true leaves), the radishes were cut at the soil and dried, then they were weighed to obtain an above ground biomass. The results of this experiment showed that there was no significant change ( $p=0.05$ ) in the plants with carbon and without carbon, using a T-test. This was true for the radishes with the tansies and the control plants. This shows that carbon does not effect the growth of radishes, and that if allelochemicals are produced they do not affect plants that are already germinated. The production of allelochemicals was not proven or disproven with this experiment. A follow up experiment is currently underway to determine if the common tansy produces allelochemicals that effect seed germination.