

## ABSTRACT

Parasitic plants, which make their living by extracting water and nutrients from other plants, are highly destructive pests of agriculture, and managing them is difficult given intimate parasite-host associations. Ecologically-based control tactics hold considerable promise, but parasitic plants are poorly studied compared to their autotrophic counterparts. Here I propose to explore the role of olfactory cues in host-location by dodders (obligate parasites in the genus *Cuscuta*). Dodder seedlings must rapidly locate and attach to a host plant after germinating or perish. Recent research in our laboratory showed that seedlings of *C. pentagona* recognize and respond to volatile chemical cues released from nearby host plants. Furthermore, they distinguish between the odors of preferred and non-preferred hosts (tomato vs. wheat). Building on these observations I will determine **(1)** whether the recognition of volatile cues persists in older, established dodder vines, which presumably face less intense pressure to rapidly locate hosts, and **(2)** whether other dodder species utilize olfactory cues—and if so, whether their responses are shaped by their specific host plant preferences. This research will expand our knowledge of volatile-mediated plant-plant interactions and provide key information about the ecology of North America's most important parasitic weeds.