Seed preferences of the tropical fire ant, Solenopsis geminata in Taiwan
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Solenopsis geminata was introduced into Taiwan many years ago, and is now widely distributed in Central and Southern Taiwan. Because of their granivorous habit (dyszoochory), S. geminata workers are observed to attempt harvesting seeds from numerous plant species. This study was conducted by excavating fire ant nests to find seeds harvested by fire ants. A total of 37 seed species in 12 plant families were collected from four counties (Taichung, Yunlin, Chiayi and Tainan) in Taiwan. S. geminata preferentially harvested herb seeds, especially the Poaceae including 16 species. Three species of seeds from tree and shrub were found in the nests. They are Broussonetia papyrifera, Flueggea virosa and Solanum torvum. A large quantity of the seeds collected in Taichung is Panicum maximum, collected in Yunlin are Chamaesyce hirta, Eleusine indica and Paspalum conjugatum, collected in Chiayi are Pouzolzia zeylanica, Chamaesyce hirta and Dichanthium annulatum, and collected in Tainan are Amaranthus patulus, Dactyloctenium aegyptium and Digitaria sanguinalis. We performed removal experiments to study preferences of S. geminata for seeds comprising ten species (seven grasses and three forbs) in Taichung and Chiayi counties. The results showed that grass seeds, such as Dichanthium annulatum, Panicum maximum, and Paspalum orbiculare were readily removed by fire ants. In contrast, fire ants appear to less prefer seeds from forbs, such as Chamaesyce hirta. Seed weight seemed to influence the ant’s choices. Seeds above 0.56 mg were harvested preferentially, but 0.07-0.43 mg seeds were rarely retrieved. This study suggests that seed preferences of S. geminata may have impacts on the abundance and composition of the plant community, especially grasses in fields infested with S. geminata in Taiwan.