

ABSTRACT

Purple nutsedge (*Cyperus rotundus*) is an invasive weed in tropical cultivated lands and propagates through tubers, rhizomes, seed and corms. Weedy invasive plants have unique functional traits that enable their invasiveness. The objectives of this study were to determine the drivers of the purple nutsedge invasion in the Zimbabwe's agricultural systems among allelopathy, dispersal and dormancy-breaking mechanisms. Three experiments were carried out each in the laboratory, greenhouse and field. All the experiments were in completely randomised design replicated six times. Results showed that purple nutsedge leaf, stem and tuber extracts successfully ($P < 0.001$) inhibited germination and radical extension of *Sorghum bicolor*. Cutting the seed, which mimics the plough action on tubers gave the highest ($P < 0.05$) sprouting compared to exposure to freezing temperatures. There was a direct relationship between dispersal distance and wind speed ($R^2 = 0.907$). The purple nutsedge plants attached to the plough were related ($R^2 = 0.515$) to the number of plough passes. This study confirmed that allelopathy, easiness for dispersal and dormancy-breaking by the cutting action of the plough were the drivers of the weed's invasiveness. Therefore, allelopathy, ploughing, dispersal by wind and plough contribute to invasiveness of the weed.