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Effect of sunflower extract to control weeds

Authors:
Tayyebeh Abdallahabadi[1] and Saeid Bakhtiari[2]

Institution:
1. MA Student, Department of Agronomy, Neyshabur Branch, Islamic Azad University, Neyshabur, Iran

2. Faculty Member, Department of Agronomy, Neyshabur Branch, Islamic Azad University, Neyshabur, Iran

Corresponding author:
Saeid bakhtiari

ABSTRACT:

Considering the effects of chemical herbicide application, biomarkers have now become more widely considered for controlling weeds. Allelopathy demonstrates the potential for this through the release of trace elements from decomposable plant leaves, seeds, stems and strains. In order to investigate the effects of aqueous extract of sunflower on the germination and morphological characteristics of *Rumex acetosa*, *Lepidium draba* and *Convolvulus arvensis* seedlings as three common weeds in sugar beet fields, a research experiment was carried out in the laboratory of Islamic Azad University, Neishabour, in 2016 as a factorial in the form of completely randomized design with four replications. The experimental treatments were aqueous extract of sunflower (zero, 25%, 50%, 75% and 100%), the type of weed in three levels (*Rumex acetosa*, *Lepidium draba* and *Convolvulus arvensis*), respectively. The results showed that the highest percentage and rate of germination were observed in non-use of sunflower extract (irrigation with distilled water), which in *Rumex acetosa* 97 and 33 percent were higher respectively, in comparison to *Lepidium draba* and *Convolvulus arvensis*. In the study of stem fresh weight, fresh and dry weight of roots, it showed that the field bindweed plant was more resistant compared to *Rumex acetosa*, *Lepidium draba*. The lowest germination and seedling traits were obtained in 100% of sunflower aqueous extract, which affected the weeds of the Ivy and Blacks, and the sorrel was more resistant. According to the results, sunflower extract as a strong combination for weed control can have promising results for sustainable agriculture.

Keywords:

Allelopathy, Sunflower extract, *Rumex acetosa*, *Lepidium draba*, *Convolvulus arvensis*