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Effect of Allelopathic combinations corn on the important biodiversity of weeds

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ABSTRACT

Seed germination and the green weeds is most important step in determining the potential of its population in agricultural ecosystems. Pigweed and Chenopodium album weed seeds with high productivity of the farms are the dominant. Because of the high seed production are the dominant species in the seed bank of weed seed in soil and presence of so many years to farms. Only conditions and soil properties can affect the seed bank. One factor that can weed seed bank in soil Allelopathic compounds effectively. These compounds have different effects on weed seeds and the presence of compounds Allelopathic can be change crops. This experimental was Allelopathic corn in various combinations for treatment prior to germination tests at different temperatures that determined to the role of these factors in controlling Pigweed and Chenopodium album seeds in weed seed bank. Results showed that Allelopathic combinations with high concentration and more time contacts had more effect. However Allelopathic compounds more susceptible to weed seeds and the germination of those compounds was reduced. Treatment by 7 hours rate germination decreased this decrease was much more Chenopodium album. Pigweed seed germination in a long time had a significant decrease. Allelopathic a time contacts of plant compounds and weed seeds with the different compounds effect on a variety of weeds.

Key words: Weed diversity, corn, Allelopathy, time and concentration.

INTRODUCTION

Weeds who replaced agricultural ecosystems by human had stability associated with crop plants. Because of interference to ecosystems in agricultural had Severe damage [1].

Annual weeds can produce depending on species and environmental conditions from 100 to more than 500,000 seeds per plant. On average 100,000 and 70,000 seed production to pigweed and *Chenopodium album* respectively [2]. Amaranth is one of the most important and main weeds in the world [3]. Researchers reported that Root extracts of 10 species of maize crops that, germination and seedling growth can be stopped by pigweed [4]. Pigweed and *Chenopodium album* root growth will stop by extracts of corn [5]. The aim of this experimental was the effect of corn extract and duration of treatment on the germination of weed, since both the weed seeds with the same weight can be an acceptable result in differences seed characteristics of the compounds provided Allelopathy.

MATERIALS AND METHODS

For preparing Allelopathic extracts of corn, corn plants were collected from the field and then were dried in the oven with a temperature of 80 °C. To prepare the powdered extract of 1 to 10 was used 10 g powder in 100 cc of water then the concentration of the extracts was 1 to 25. Experiment was factorial design on based completely randomized design. Treatments were different times (45, 28, 15 and 7) and two weeds (pigweed seeds and *Chenopodium album*. in this experimental was removed from 3-point field samples of soil to a depth of 30 cm and 300 square centimeters Then soil samples mixed with water After some time seeds float on water surface were collected this operation was repeated several times Seeds were then air-dried and binocular below to identify weed seed Amaranth seeds and *Chenopodium album* numbers was separated from the in the soil seed germination test was determined after treatment with extracts of corn Allelopathic. This experiment was conducted in three replicates and 50 seeds in each sample. The extract the seeds of each weed were studied to extract the corn on the biodiversity of weeds. One of the most critical stages of germination and seedling growth of these extracts were heavily influenced by these extracts reduced. This experimental Because the most important mechanisms to maintain the density of weed seed bed in soil is sleep seed dark is the most important factor in maintain in Pigweed and *Chenopodium album* seeds. Seeds in darkness were exposed Allelopathic extracts. MSTAT-C and EXCEL were used to analyze data and draw graphs, respectively.

RESULTS

Weed seed counts showed that in every square meter of soil to a depth of 30 cm on average there are 24,370 weed seeds that 98% of the amount of seeds, pigweed and *Chenopodium album* was dominant region. 39% of the amount of weed seeds was *Chenopodium album* and other seeds were pigweed. This indicates the potential for weed seed bank in the soil is very high and intense competition for dominance in the fields with crops that unfortunately, little attention has been. By germination test of weed seed germination in *Amaranthus* and *Chenopodium album* without treatment was 100% and 98% respectively. Results showed that maximum germination was equivalent to 46/56% by treatments in 7 hours, of the seeds *Amaranthus* and lowest was equivalent to 12/32 percent by 46 hours in *Chenopodium album*. If The extract of treatment and treatment duration 45 days as long as the weed seeds remain at a farm in a year Consider After taking three times the average percentage reduction for the two weed seeds, only 836 seeds remained. But in terms of depth of field and test the mixture remains in the soil to a depth of 30 cm is made in good. But Corn extract and duration of treatment with the extracts pigweed and

Chenopodium album had different result. Treatment by 7 hours of reducing weed seed germination. At other levels with increasing duration of treatment reduced Chenopodium album germination while in pigweed by increasing treatment time to 45 hours, no significant differences were observed. In just 45 hours treatment was obtained a significant reduction in seed germination. This result showed that pigweed seeds had more resistant to extract the corn than Chenopodium album seeds. Under conditions that most plants in a field of corn in the rotation, pigweed will appear more than Chenopodium album in a field. The extracts of plants can alter an area's biodiversity weeds.

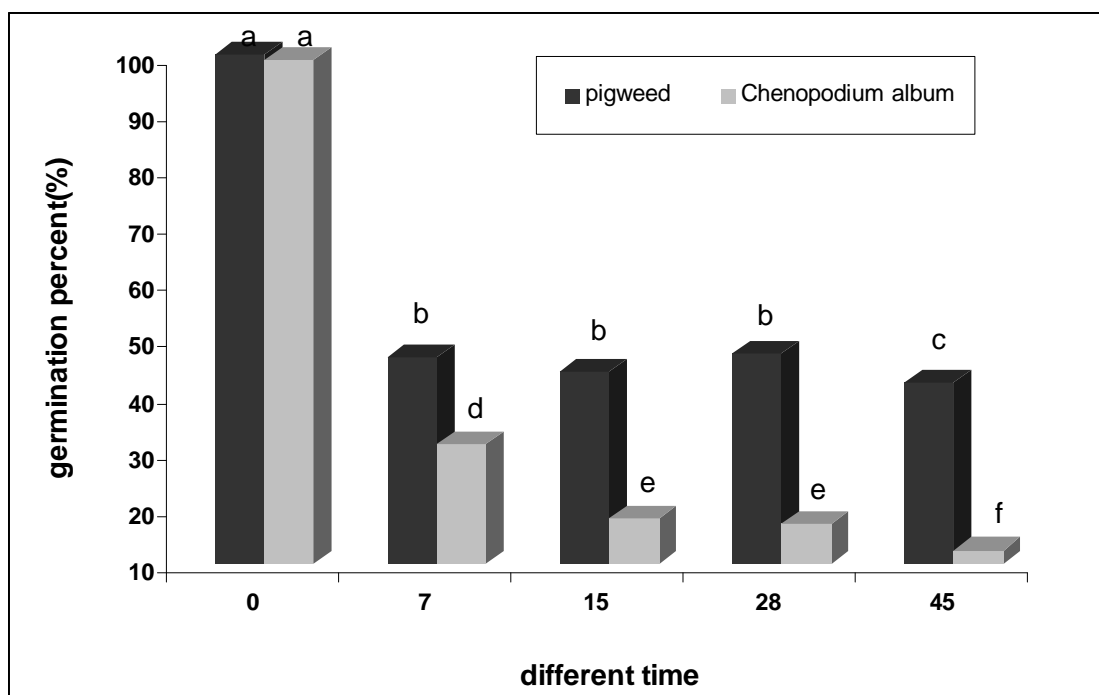


Fig1 The effects of various treatments on the germination of pigweed and Chenopodium album

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