Australian Journal of Basic and Applied Sciences, 5(10): 871-873, 2011
ISSN 1991-8178

Allopathic of *Rhaphanus Spp, Brassica Nigra a*nd *Brassica Oleracea* on Germination and Early Growth of *Petunia Picoteeseries* and *Amaranthus Caudatus*

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Abstract: This study was to test the allopathic effect of the crucifers; *Rhaphanus* spp*., Br**a**ssica nigra* and *Brassica oleracea* on two ornamental caudants *Petunia picoteeseries and Amaranthus.* Samples of each crucifer were dried at 60° C and the resulting powders were ground and used to produce extracts which were then passed trough two layers of sterile cloth to remove the debris. The extracts were centrifuged at low speed (3000 rounds / minute) for 45 minutes. Concentrations of 2.5 and 5 % were prepared from the extracts and double distilled water was used as the control. The results showed that the crucifers had significant effect on germination percentage and radical length. Germination percentages, radical and hypocotyls lengths of both tested plants were significantly reduced and radical growth compared to hypocotyls was the more inhibited. The negative allelopathic effects on the growth parameters of *Petunia picoteeseries* were greater than for *Amarathus*.

Key word: Allelopathic, *Rhaphanus* spp., *Brassica nigra* and *Brassica oleracea*, *Ammaranthus caudatus, Petunia picoteeseries.*

INTRODUCTION

Allopathy includes any harmful or beneficial effects that directly or indirectly impact on another plant from the production of chemical compounds produced by that plant. Some weeds with this ability create favorable environmental conditions for their own growth and development (Rizvi, S.J.H, 1992).

During some dark nights over the course of the experiment it was shown that smell has a potential allopathic effect that can inhibit the growth of plants and microorganisms (Grodzinsky, M.A. 1992 and Oleszek, W *et al.,* 1996). Patric *et al.,* analyzed the residue of cabbage *Brassica oleracea* and reported that it had a blocking effect on the germination and growth of lettuce (Patric, Z.A *et al.,* 1963). Tollsen *et al*., observed the toxicity of waste compounds and found that lettuce was more sensitive than wheat (Tollsen, L. 1988). Yamane *et al* studied the growth inhibition of plant species caused by mustard Hindi due to the allopathic effect of lisothiocyanate produced form the root of the plant (Yamane, A., 1992). It was reported that weed population density was reduced by 96% (Grodzinsky, M.A. 1992). According to studies on other plant species, *Brassica oleracea* has allopathic properties in the form of glucosinolates, particularly that of atlisothiocyanate that is important for the stimulation of enzymatic degradation. This test measured the allopathic potential for some plants on the germination and early growth of the ornamental plant *Petunia*, and *Amaranthus*.

MATERIAL AND METHODS

This experiment was conducted in 2010 at the Faculty of Agriculture, Shoushtar University. *Rhaphanus* spp*, Brassica nigra* and *Brassica oleracea* were collected from farms and the city. The organs of the plants smell separate family night were separated and dried at 60 ° C for 72 hours then milled, powders were obtained and weighed. Then 20 g of the powder was placed in 200 ml Erlenmeyer flask and distilled water was added and kept at 24 ° C for 24 hours in the laboratory. The extract was passed through two layers of clean cloth, and then centrifuged at 3000 rounds per minute for 45 minutes. Distilled water at concentrations of 2/5 and 5 percent were prepared and distilled water to a concentration of zero was used as the control. The study was arranged as a factorial experiment in a randomized complete block design with three replications. The factors were ornamental plants, including both surface and sub-factors of petunia and ornamental amaranth, smell the night, including three levels: cabbage, black mustard and *Rhaphanus* spp .The factors were extracts of cabbage *Brassica oleracea*, black mustard *Brassica nigra* and radish *Rhaphanus* spp. The extracts were applied in four levels: control, 2.5 percent, 5 percent and 10 percent. 50 seeds from each selected ornamental plants. For ornamental plants, 36 containers have been planted seeds from Petunia and Amaranthus were placed in disinfected Petri dishes. 5 ml of the prepared extracts was added to each dish. After 144 hours tests for germination were carried out. The stem and root of each Petri dish to roast the seeds of 10 seedlings were

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randomly selected and their lengths were measured. MSTAT-C software for the analysis of variance was used to compare mean data.

RESULTS AND DISCUSSION

The results showed that the main effects and interaction factors were significant on germination and shoot growth. But the root is the only significant concentration. Germination was reduced for all three species with increasing concentrations of the extracts (Figure 1) but the negative effects of cabbage extracts in concentrations of 2.5 and 5 percent were higher with *Brassica olerocea* than with the other two crucifers.

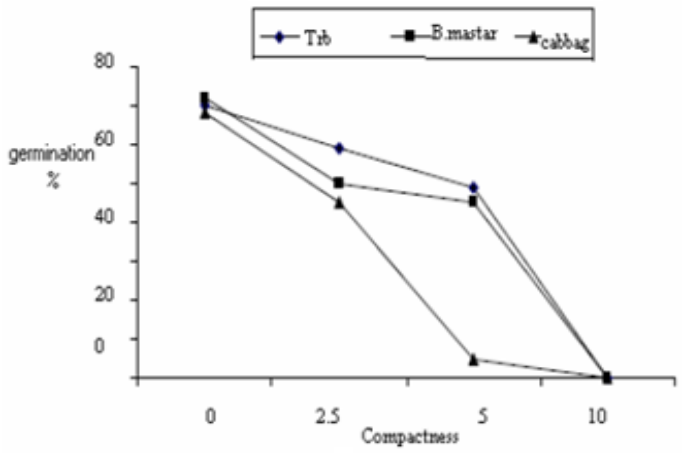

Fig. 1: the dark night of the effects of different plant extracts on germinanation of omamental plants smell.

Root growth by various concentrations, three plants with a dark night, the smell of cut But shoot, cabbage at concentrations of 2 / 5 and 5 percent compared to two other plants, the growth is more affected (Fig. 2). Given this, the more sensitive to the stem, GE is the cabbage extract. Interactions between factors were significant negative effects on the germination of cabbage extract concentration of 2 / 5 and 5 percent in comparison with other species on the germination rate was higher and the inhibition of three plant odor on the adjective dark night in petunia More pigweed (Figure 3). This interaction was not significant on the origins and characteristics of petunia and pigweed plant extracts with increasing concentrations of a dark night, roasted with a decreasing trend (Figure 4). Ornamental cabbage plants in both the concentration of 2 / 5 and 5 percent of the plants were more deterrent. And on these petunia gene also more sensitive than pigweed in response to the effects of shoot allelopathic shows. The results showed that with increasing extract concentration, the effect of the decrease, this could be due to increased toxicity and increased alelochmical on the characteristics of smell (Rice، E.L. 1984).

In this study cabbage plants, compared with two other species that had higher allopathic potential. This plant can be a good candidate model for the study of natural herbicides and a sustainable agricultural pesticide.

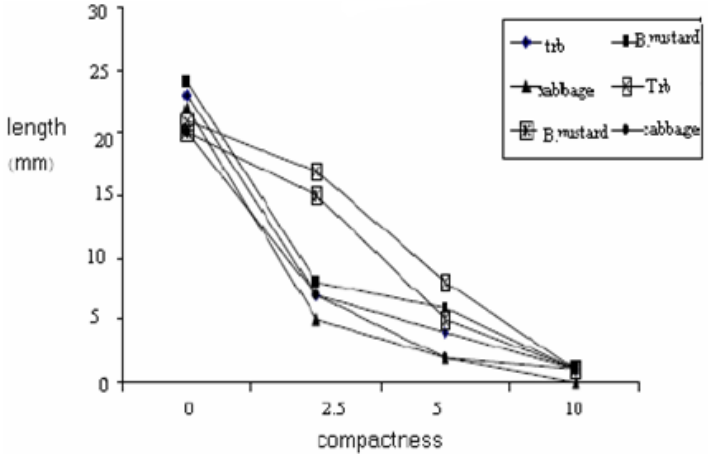

Fig. 2: Extract Of The Plant Root And Shoot During The Dark Night, The Smell Of Omamental Plants.

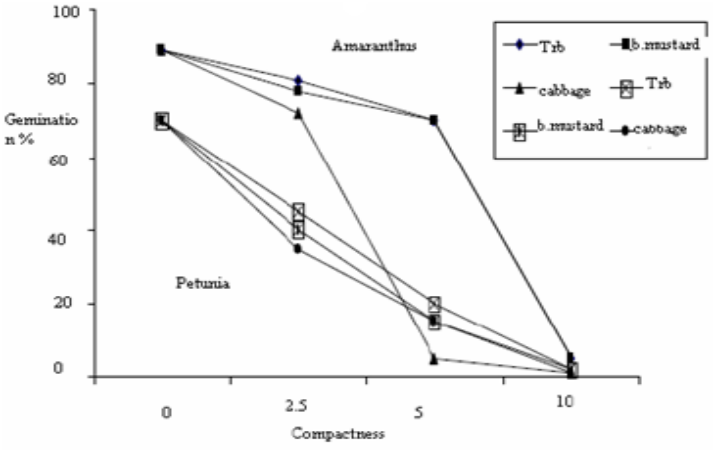

Fig. 3: the dark night of the effects of different plant extracts on germination bo petunia.

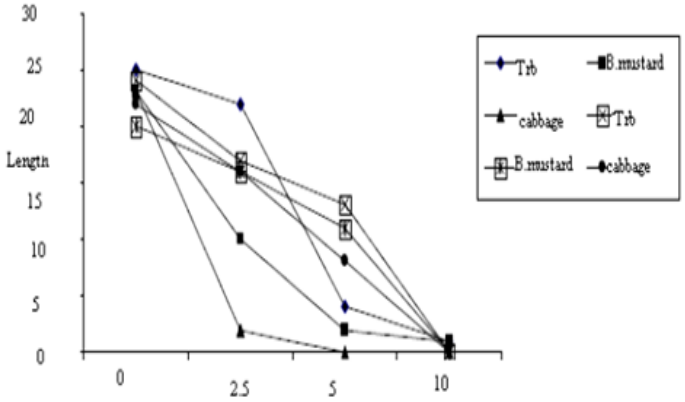

Fig. 4: effects of different plant extracts on a dark night smell the tumbleweed and petunia.

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