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: التأثيرات الأليوباثية للعشر على إنبات ونمو بعض نباتات المحاصيل

التأثيرات الأليوباثية للعشر على إنبات ونمو بعض نباتات المحاصيل

Document Language

: Arabic

Abstract

: Allelopathy is effects of compounds excreted from the plant to get rid of some other neighboring plants or to stop their seed germination and growth. These compounds cause disturbance in the different activities of the receptor plant. Calotrpis procera is one of the widely distributed plants throughout the different areas of Saudi Arabia including farms, valleys and other wise this plant is allelopathic then it is going to cause real problems to agricultural crops growth. In this study allelochemical effects of C. procera leaf extract on germination and growth of some crop plants was investigated. Different concentration (5, 10, 20, 40, 60%) were prepared from dry C. procera leaf water soluble extracts, together with distilled water (control), to study their effect on germination and growth of barley, wheat, and cucumber. Results indicated significant reduction in daily germination percentages of cucumber seeds, followed by barley and wheat, and there was gradual reduction in the length of the radicle and plumule compared to the control. Regarding growth experiment, the results showed gradual reduction in the length of both shoot and root system, and reduction in shoot system fresh weight of all plants, while the root systems fresh weight was decreased in cucumber and barley, and increased in wheat. There was no significant difference between the dry weights of the shoot and root systems and that of the control, except for wheat and cucumber, where the first gave an increase in root system dry weight and the second an increase in shoot system dry weight. Also there was no significant effect of the leaf extract on the water content of the shoot system, while the effect was significant as regard the root system water content. The leaf extract caused significant disturbance in the physiological activities of the plant, with reduction in chlorophyll A, B and the total chlorophyll, especially under 60% concentration. Most of the extract concentration resulted in accumulation of carbohydrates and proteins in most of the plants. Most of the leaf extract concentrations also caused an accumulation of some elements like (N, Mn, Zn, Mg), and a reduction in some other elements like (K, P, Na), while the others elements (Fe, Ca) showed no increase or reduction trends. The results of this study revealed an inhibition effect of the dry leaf extracts of C. procera on germination and growth of crop plants, in a way that it reduces germination percentage of seeds and also reduces growth especially at high and medium concentrations.

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