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Allelopathic effect of alfalfa residues on germination and growth of barley

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Abstract : This study aimed at evaluating the allelopathic effects ofalfalfa residues on the germination and growth of the barley plant grains treated with different concentrations (6gm, 9gm, 12gm) of alfalfa residues. Results of this study showed that the percentage of germination significantly decreased when treated with different concentrations of alfalfa plant residues compared to the control. The concentration of 12gm led to the highest significant decrease. Barley seedlings germination percentage was decreased significantly with a rate that fluctuates between 26.7% - 60% during the first week of seedling emergence compared to the control. Also, the lowest significant decrease ($p < 0.05$) was recorded in the length of the foliage (12.67 cm in length in the first sample and 16.33 cm in the second sample), poxes (4.5 cm in length in the first sample and 4.67 cm in the second sample) and the whole plant (17.17 cm in length in the first sample and 21.0 cm in length in the second vessel) at a concentration of 12g compared to the control. In the case of weights, the concentration of 12g recorded the least significant difference ($p < 0.05$) in the first sample (with a weight of 0.22 g), while in the second sample the concentration of 9g recorded the lowest significant difference ($p<0.05$) for the whole plant (0.25gm weight) compared with the control, while no significant differences were recorded in the difference in the time of sampling.Further investigations are needed to determine the influence of this variations, and to identify the active compounds involved in alfalfa residues allelopathy.

Keywords : Allelopathy,Allelopathic effect; Alfalfa residues; Barley.

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