

ABSTRACT

INFLUENCE OF DIFFERENT CO₂ LEVELS ON THE GROWTH, COMPETITION AND HERBICIDE SENSITIVITY OF SOME IMPORTANT WEEDS IN WHEAT (*Triticum aestivum* L.)

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The aim of this study was to investigate the effects of different CO₂ levels on the growth, competition and herbicide sensitivities of *Avena sterilis*, *Phalaris minör*, *Galium tricornatum* and *Sinapis arvensis* which are important weed species in wheat (*Triticum aestivum*) growing areas. The effect of CO₂ on the growth of wheat and weeds was examined in the study under competitive and non-competitive conditions. Furthermore experiments were carried out with the aim of determination of herbicide sensitivities of weeds under different CO₂ conditions. Results showed that growth of wheat was increased by elevated CO₂ when grown without competition. Under competitive conditions, however CO₂ had no effect on wheat growth. Weed competition reduced wheat growth under both CO₂ conditions. Weed growth was not affected by CO₂ under noncompetitive conditions, but was reduced under elevated CO₂ conditions. Results of herbicide experiments showed that sensitivities of grass weeds were lower under competitive conditions, while the sensitivities of broad leaf weeds were increased. These results showed that wheat and weed growth as well as the competition among them would be significantly affected under future climate scenarios.

Key words: Wheat, weed, CO₂, competition, herbicide, *Avena sterilis*, *Phalaris minör*, *Galium tricornutum*, *Sinapis arvensis*