

The Allelopathic Potential of Saffron (*Crocus sativus* L.) on Following Crop in Rotation

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Traditionally farmers have recognized the harmful effect of saffron debris on following crop for many centuries. Little information is available on allelopathic effects of saffron on crop rotation. This study was conducted to examine the allelopathic effects of different soil incorporated parts of saffron, on emergence and seedling growth of tomato and wheat under greenhouse condition. Two experiments were conducted. In experiment 1, different rate of saffron leaves and corms incorporated into soil and its allelopathic effect on the emergence and growth of tomato and wheat were examined. In experiment 2, the emergence and growth of tomato and wheat were tested on soil under different age saffron and compared with check soil. Leaves and corms incorporated in the soil inhibited the emergence and growth of tomato and wheat. Significant reduction in emergence, shoot length and dry weight of shoot were observed as the plant residues in the soil were increased. The concentration-dependence response of the test plants to saffron suggests that this plant might contain allelochemical(s). Apparently, the allelopathic effect of the leaves on seed emergence and seedling growth of tomato and wheat was stronger compared to those of the corms. The soil under saffron cultivation also inhibited seed emergence and seedling growth of test plants. Age of saffron plantation did not explain the effectiveness of saffron allelochemicals on test plants. In general, tomato was more sensitive than wheat to saffron residues. In conclusion further works is necessary to specify and verify the allelochemicals produced by this useful plant.

Keywords: Saffron, allelopathy, sequence crop.