

Evaluation of yield and yield components of borage (*Borago officinalis*) in intercropping with Roselle (*Hibiscus sabdariffa*) foliar application of Iron

Abstract

In order to evaluate the yield and yield components of borage in intercropping with hibiscus under the iron spray an experiment as factorial in a randomized complete block design with three replications in research farm of Agricultural Research Institute of Zabol University located in the city of Zehak was conducted. Factors examined in this study consisted of foliar application of ferrous sulfate as the first factor in three levels Including the non-spraying (control), 3 and 6 grams per liter and different levels of intercropping in eight levels of sole hibiscus cropping, sole borage cropping, 75% of hibiscus + 25% of borage, 75% of borage + 25% of hibiscus, 50% of hibiscus + 50% of borage, 50% of hibiscus + 100% of borage, 100% of hibiscus + 50% of borage, 100% of hibiscus + 100% of borage as the second factor. The results of the analysis variance showed that interactions of intercropping and foliar application of ferrous sulfate on hibiscus anthocyanins, borage anthocyanins, mosilage percentage of hibiscus, relative crowding coefficient (RCC) of hibiscus and relative crowding coefficient of borage was significant. The results of the means comparitions showed that the highest hibiscus economic yield of foliar 3 grams per liter of ferrous sulfate fertilizer in intercropping 100% of hibiscus + 50% of borage was obtained. The highest concentration of hibiscus anthocyanins was obtained from 6 grams per liter of foliar application of ferrous sulfate in sole hibiscus cropping. The results showed that the highest economic yield was obtained from foliar application of 3 grams per liter of ferrous sulfate fertilizer in sole borage cropping. As too the highest concentration of hibiscus anthocyanins was obtained from 6 grams per liter of foliar application of ferrous sulfate in intercropping 25% of hibiscus + 75% of borage. Means comparison showed that the highest competitive ratio (CR) of hibiscus was obtained from foliar application of 6 grams per liter of ferrous sulfate fertilizer in 50% of hibiscus + 50% of borage and the highest competitive ratio (CR) of borage was obtained from foliar application of 3 grams per liter of ferrous sulfate fertilizer in 75% of hibiscus + 25% of borage. The highest land equivalent ratio (LER) was obtained from 100% of hibiscus + 50% of borage. Land equivalent ratio in intercropping systems more than one, that presents the advantage of intercropping systems compare with sole cropping.

Key words: Anthocyanin, Relative Crowding Coefficient, Competitive Ratio, Economic Yield, Aggresivity, Land Equivalent Ratio



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