

Abstract

The main advantage of intercropping is the more efficient utilization of the available resources and the increased productivity compared with each sole crop. Other benefits of intercropping are related to the better soil cover, which has advantages for weed control, and leads to reduced erosion and nutrient leaching. In order to evaluate the Evaluation of methanol spraying on ecophysiological aspects of triple intercropping of roselle, peanut and aloe, a split plot experiment based on randomized complete block design was carried in Sistan and Bauchestan province, Zahak city, during 2015-2016. The main plots methanol were three levels including: 10, 20 and 30 volumetric percentage, and cropping systems including sole peanut, sole roselle, sole Aloe vera, 50% roselle + 25% peanut + 25% Aloe vera, 100% roselle + 50% peanut + 50% Aloe vera, 40% roselle + 30% peanut + 30% Aloe vera, 100% roselle + 25% peanut + 75% Aloe vera, 60% roselle + 20% peanut + 20% Aloe vera, 100% roselle + 75% peanut + 25% Aloe vera were tested in sub plots. Land equivalent ratio (LER) were used to compare the efficiency of sole cropping systems with that of intercropping systems. The results showed that methanol foliar application and cropping systems affected the yield and yield components of Peanut, Roselle and Aloe vera significantly. The highest yield of all three crops obtained from sole cropping and methanol foliar application treatments the highest and lowest yield of Peanut, Roselle and Aloe vera was belonged to 30 and 10 volumetric percentage treatments, respectively. Soil enzymatic activities of beta glucosidase, alkaline phosphatase and dehydrogenase were significantly affected by intercropping, so that the highest and lowest was belonged to mixed and pure cultures respectively. Intercropping had a significant effect on weed control, So that the highest and lowest number and weight of weeds was belonged to 100% roselle + 50% peanut + 50% Aloe vera and pure culture respectively. The methanol foliar application treatments the highest and lowest nutrient absorption was belonged to 30 and 10 volumetric percentage treatments, respectively. The highest of nutrient absorption was belonged to pure culture. Soil moisture and light absorption were significantly affected by intercropping, so that the highest and lowest was belonged to mixed and pure cultures respectively. The highest and lowest of soil temperature was belonged to sole aloe vera and 100% roselle + 50% peanut + 50% Aloe vera respectively.

Key Words: Enzymatic activity, Soil temperature, Light, Soil moisture, Weeds, Nutrient absorption



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