Abstract :

In order to access yield of ajowan in intercropping with barley influenced by the application of manure and chemical fertilizer an experiment was conducted as split plot randomized complete block design with three replications in Zabol research farm during 2012. Main-plot was application of manure at two levels A1) application of 45 t ha^{-1} manure and A2) application of chemical fertilizer (nitrogen, phosphorus and potassium in rates of 30, 50 and 80 kg ha^{-1}). Subplots was included five planting patterns; B1) ajowan sole culture with 0.30 m distance between rows, B2) barley sole culture with 0.20 m distance between rows, B3) ajowan and barley mixed intercropping, B4) ajowan and barley row intercropping with 0.45 m distance between rows, B5) ajowan and barley row intercropping with 0.60 m distance between rows. The effects of fertilizer treatment on quantitative traits of ajowan including plant height, number of umbels per plant, number of seeds per umbel, number of branches, seed weight and seed yield of ajowan was significant. For all quantitative traits effect of manure was more in comparison with chemical fertilizer, and sole cultures and mixed culture showed the least and greatest increase, respectively. Fertilizer treatments had no significant effect on the percentage of essential oil, while fertilizer treatments had significant effects on essential oil yield. In addition to, planting patterns had no significant influence on qualitative traits of ajowan. Like ajowan in barley manure had greater effect rather chemical fertilizer on quantitative traits in plants. Among planting patterns intercropping and sole culture had the greatest and the least effects on quantitative traits in plants, respectively. Fertilizer and planting pattern interaction had no significant effect on all traits.

Key words: Ajowan, Barley, Fertilizer, Intercropping, Manure, Planting pattern.

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Effect of different levels of manure, chemical fertilizer and planting patterns on ajowan (*Carum capticum* (L.) C. B. Clarke) yield in intercropping with barley

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