

Effect of sowing date and intercropping on quantitative and qualitative characteristics of medicinal plants *Carum copticum* L. and *Plantago ovate* L.

Abstract

To study the effect of different sowing date and intercropping ratios of ajowan and fleawort on growth and yield quantitative and qualitative characteristics plant, an experiment was conducted in the research field of Faculty of Agriculture, University of Zabol, during 2012-2013. The experimental design was split plot, using randomized complete block design with three replications. The main factors included two sowing dates of January 09, 2013 (A1) and February 08, 2013 (A2). The six cropping system including were considered as subplot as follows: sole crop of ajowan (B1), sole crop of fleawort (B2), 25% fleawort +100% ajowan (B3), 50% fleawort +100% ajowan (B4), 75% fleawort +100% ajowan (B5), 100% fleawort +100% ajowan (B6). Intercropping system type was increased. The results showed that sowing date on seed yield, seed weight, and plant height of both plant dry biomass of weeds, the number of weeds were significant. The highest grain weight, grain yield and plant height in two sowing date were obtained A1, also the highest biological yield and essential oil yield Ajowan, mucilage percent fleawort from the date of planting A1 were obtained. With delay in sowing (date A2), umbels per plant, umbelets the umbrella, seeds umbelet, oil weight and essential oil percent ajowan, and fleawort seeds per spike and spike length increased. The results showed that The highest percent gamatrypynn ajowan essential oil components of and cymene were obtained from A1 sowing and planting were the most thymol and alpha-pinene Ajowan essential oil from A2, was obtained. date sowing weeds and total weed biomass was A1 towards A2 sowing date to the 6.9 and 18.1 percent. Results from intercropping ratios showed the highest seed yield and biological yield of the plants, the highest percent essential oils, essential oils, weight and yield Ajowan essential oil from *Carum copticum* pure cultures were obtained. Maximum height of the plant than B6 of intercropping were obtained. The total biomass of number of weeds and weeds was significantly affected by of intercropping ratios. About weeds control and management number of weeds and weeds dry biomass was lowest in the of intercropping treatments compared to pure B6 won two plants. Biomass and number of weeds the amount of 31.6 and 25.5 percent has decreased. Assessment showed that of intercropping of intercropping in all ratios, LER is greater than one that showed the superiority of of intercropping than in pure culture. The lowest temperature and soil moisture were obtained from a mixed B6.

Keywords: Essential oil yield; Intercropping; Sowing dates; Weeds; Yield



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**The Thesis Submitted for the Degree of M.Sc in the field of
Horticultural Science- Medicinal Plant**

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June 2014