

Abstract

An experiment was conducted to investigate the effect of chemical and biological phosphorus fertilizers on the qualitative and quantitative properties of chamomile in drought stress conditions, in Zabol University research field, during 2016. The experimental design was split plot, using randomized complete block with three replications. Main plots were drought stress including; irrigation after depletion of 90, 70 and 50% of field capacity (FC) and the sub factors were phosphorus fertilizers in four levels including; without any fertilizer, 100% chemical phosphorus fertilizer, combined fertilizer including 50% of phosphate fertilizer + biofertilizers (Phosphate B-2), biological fertilizer (Phosphate B-2). The results showed that plant height, head diameter, stem diameter, chlorophyll b and potassium and carbohydrate percent were affected by drought stress and fertilizer. Increasing the intensity of stress from control to 50% of crop capacity reduced plant height, head diameter, stem diameter, essential oil yield, chlorophyll b and potassium and increased carbohydrate content and the use of 50 % of chemical and biological fertilizers had the most influence. Interaction of drought stress and phosphorus fertilizer was significant on number of flowers per plant, number of main stems, dry weight of plants, dry flower yield, essential oil percentage, essential oil yield, proline, phosphorus, chlorophyll a, total chlorophyll and carotenoids. The highest number of flowers per plant, number of main stems, dry weight of plants, dry flower yield, essential oil yield, chlorophyll a and total chlorophyll from non-stress with chemical and biological phosphorus combination and the highest percentage of essential oil, proline and carotenoids were obtained from drought stress combined with the use of chemical and biological phosphorus fertilizers. Based on the results, drought stress is appropriate for increasing the quality of the medicinal plant.

Key words: Essential oil percentage, Flower yield, Phosphate barvare-2, Proline, Triple super phosphate



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**Effect of biological and chemical phosphorus
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