Study of the effect of water stress and manure and chemical fertilizers on quantity and quality of chamomile (Matricariachamomilla)

Management of organic and inorganic fertilizers application is very important in their effect on environment and plant yield. In order to determine the effect of drought stress and different amendments on flower, oil and chamazulene yield and yield components of Matricariachamomilla L., a study was conducted in split plot design with three replications in research farm at University of Torbat Heydarieh, Iran. Treatment included W₁ (non stress), W₂ (%55 FC) and W₃ (50% FC) as main plot and three kinds of fertilizers: F₁ (non-fertilizer), F₂ (chemical fertilizer), F₃ (manure fertilizer) and F₄ (compost) as sub plot. Results showed that drought stress decreased quantitative and qualitative yield of German chamomile. Chemical fertilizers enhanced yield and improved quality characteristics of plants. The maximum yield and its components, essential oil, chlorophyll, proline, N, P and K elements absorption and concentration were obtained from chemical fertilizer usage. In this experiment drought stress increased essential oil percentage but the highest of that obtained in W₂ with using chemical fertilizer. Animal manure and compost had more quantity and quality of yield than control treatment. Generally, drought stress in medium level lead to increase the yield of essential oil; and among amendments, chemical fertilizer had highest effect on yield of essential oil.

Keywords: Compost, Essential oil, Fertilizer, Matricaria chamomilla L., Drought

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