

Effect of N- fertilizer and harvest time on growth, development yield and active substances of garden thyme

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Garden thyme (*Thymus vulgaris* L.) is a perennial subshrub belonging to the *Lamiaceae* family. Its properties were illustrated in the pharmacopoeias. Its active substances are widely used in pharmaceutical, cosmetic and food industries. Nowadays some drugs produced from this plant in developed countries. Some drugs are also produced from garden thyme in Iran. The main aim of this investigation was to find out the effect of N-fertilization and harvest time on growth, development, herb yield, quantity and quality of active substances of thyme. All the field experiments were conducted at the experimental station of Tarbiat Modarres University in Paykan Shahr. The effects of four levels of N (0, 50, 100 and 150 kg/ha) were studied in a small plot experiment. Nitrogen was given at two different stages: 10 days and 30 days after thyme planting. The herb harvested at two different times: in full flowering and in fruit set step.

The experiment was laid in factorial on the basis of randomized complete block design with three replications.

According to the data, plant height and herb yield were increased by increasing N-fertilizer and did not have effect on the essential oil and thymol contents. Since N-fertilizer had positive effect on the herb yield, the essential oil and thymol production (per hectare) affected increasing N-fertilizer. Harvest time had a significant effect on essential oil content. As the herb harvested in fruit set step containing higher essential oil than in full flowering stage harvested. It could be concluded from the results that the best treatment for cultivation of thyme is 100 kg/ha nitrogen and the suitable time for harvesting of the herb is at fruit set step.