

## ABSTRACT

### THE EFFECT OF DIFFERENT CULTURAL APPLICATIONS ON YIELD AND QUALITY OF ECHINACEA SPECIES (*Echinacea* spp.)

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This study was aimed to determine the effect of densities and different harvesting times to yield and quality characteristics of *Echinacea angustifolia*, *E. pallida* and *E. purpurea* species. Field experiments were laid out in randomized complete block design under a split plot arrangement, with three replications in Adnan Menderes University, Faculty of Agriculture, Research and Practice farm in 2012 and 2013. In the study, it was calculated those mean green herbage yield 143.4 and 328.4 kg/da, the mean drug herbage yield of 68.08 and 142.73 kg/da, the mean drug leaf yield 17.32 and 41.19 kg/da, the mean drug flower yield 20.29 and 41.86 kg/da, the mean fresh root yield of 299.8 kg/da and mean drug root yield 138.5 kg/da for *E. angustifolia* species. At *E. pallida* species, the mean green herbage yield 409.05 kg/da, the mean drug herb yield 130.71 kg/da, the mean drug leaf yield 41.45 kg/da, the mean drug flower yield 48.26 kg/da, mean fresh root yield 577.4 kg/da and the mean drug root yield of 272.64 kg/da. At *E. purpurea* species on mean in green herbage yield 372.4 and 1854.6 kg/da, the mean drug herb yield 106.8 and 441.6 kg/da, the mean drug leaf yield 28.64 and 151.61 kg/da, the mean drug flower yield 57.15 and 186.6 kg/da, the mean fresh root yield 994.2 kg/da and drugs of root yield 469.3 kg/da. On germination studies, the best germination results were achieved at continuous light 15°C and 25°C and 20-30°C (8 h dark and 16 h light), 500 ppm ethylene in *E. angustifolia* species and 300 ppm gibberellic acid in *E. pallida* species and the KNO<sub>3</sub> with 1.5% concentration on *E. purpurea* species. Most suitable species was *E. purpurea* at Aydın ecological conditions. Also it has been determined that *E. angustifolia* and *E. pallida* species have low yields and have adaptation problems.

**Key words:** *Echinacea* spp., harvest time, plant density, yield, and quality.