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Feasibility Study for Domestication of *Teucrium polium* L. Based on Ecological Agriculture

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Abstract

Teucrium polium is a species of the Labiatae family. It grows in sandy and poor regions. This species is treated by human irregular exploitation, excessive domesticated animals grazing, drought, salinity, global warming, climate change, and also rangeland conversion to agricultural fields. In order to evaluate agroecological criteria for possible domestication of *Teucrium polium* under cropping conditions based on ecological agriculture, a primary survey was made in natural habitat of Tandureh national park in North Khorasan. In this case, biological criteria of plants including plant density, height, biomass and crown diameter was measured. Also in 2 separate field trials, agronomic criteria of this species were studied for two years (2006 and 2007) in experimental field of Institute of Plant Sciences of Ferdowsi University of Mashhad. In the first experiment, direct seeding (16 Oct, 22 Dec, 15 Mar and 13 Apr) and densities (25, 17 and 13 plants per m²) and in the second experiment, date of transplanting (17 October and 5 May) and density was evaluated. In the natural habitat, this plant grows in altitude of 1000–1100 m, on poor loamy soil. Field experiment indicated that direct seeding is not successful and autumn transplanting was superior to spring transplanting. Plants performed much better in the second year compared to the first year. In natural habitat in the first year, plant essential oil percent was more than in the field. Essential oil yield was higher in the field plants compared of natural habitat. However, it is necessary that more research should be conducted on other agronomic aspects of this problem.

Keywords: Biomass density, domestication, natural habitat, Tandureh national park, *Teucrium polium* L., transplanting