

Evaluation of environmental factors on essential oil and forage value of *Cymbopogon olivieri*

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ABSTRACT:

This study was performed to evaluate the environmental factors on essential oil and forage values of *Cymbopogon olivieri*. In this study, the aerial parts of *Cymbopogon olivieri* were collected after a time of flowering from 10 natural areas located in the Khuzestan province at two altitudes, and in three replications in the year 2016. Areas included were Chal Gandali, Talkhab e Kalat, Bardmar, Morad Abad, Tembi, Dezful, Indika, Lali, Shoushtar and Izeh. The essential oil compositions were analyzed using gas chromatography-mass spectrometry (GC-MS) analysis. Also, due to phytochemical studies, the plant composition showed Crude Protein (CP), Water Soluble Carbohydrates (WSC), Crude Fiber (CF), Acid detergent fiber (ADF), Neutral Detergent Fiber (NDF) and Total Ash (TA). According to the results, Lali area showed highest mean of essential oil. Analyses of the essential oils showed 21 main identified constituents, including Verbenen, 8/1-Dihydrocodeine, and -2-carene, p-cymene, limonene, p-cymene, Cis-p-mentha-2,8-dien-1-ol, Trans-p-menth, p-mentha-1,5-diene, Methylacetophenone, p-Cymen-8-ol, terpineol, piperitone, germacrene, b-selinene, valencene, f-eti-x-selinene, elemol, Intermedol and y-eudesmot etc. However, Piperitone was present in each area samples more than 50 percentage. The results indicated that essential oils and their chemical compositions of *Cymbopogon olivieri* are strongly affected by the environmental conditions. Also, according to the results, it was found that essential oil extraction had significant effects on WSC, NDF, CF and total ash. Also there were significant differences between areas.

Keywords:

Cymbopogon olivieri, essential oil, forage value