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*STUDY ON THE CHEMICAL COMPOSITION AND ANTIOXIDANT ACTIVITIES OF ESSENTIAL OIL
EXTRACTED FROM HORWOODIA DICKSONIAE GROWING IN THE UAE*

By

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Abstract

Plant-derived substances including essential oils, secondary metabolites and other chemical substances are gaining attention due to their broad spectrum use in different fields. Native medicinal plants can play key role in healthcare field in any country. *Horwoodia dicksoniae* is a native endangered plant in UAE. Current study is about chemical composition and antioxidant properties of *H. dicksoniae*'s essential oil as well as evaluating growth of this native endangered plant under different environmental conditions. For this purpose, first step included confirmation of the viability of seeds obtained from a seed bank following germination of seeds in different media. During growth period of two to three months, different growth parameters such as plant height, leaf density and chlorophyll content was measured. Essential oil was extracted using steam distillation method and it's chemical composition was evaluated using different laboratory techniques. Results of the study showed that red sand (native soil of UAE) is the best medium for growth of *H. dicksoniae* showing more than 90% growth compared to other media. Total phenolic content and photosynthetic pigments found to be in moderate quantity depicting proper growth of plant. Essential oil antioxidant results showed its remarkable antioxidant properties. The study aimed to contribute a broader comprehension of indigenous plant, *H. dicksoniae*, in UAE, with exploration of sustainable cultural practices and potential application of essential oil in the pharmaceutical, cosmetic, and food industries. By conducting a meticulous analysis of the essential oil extracted from *H. dicksoniae*, this research endeavors to shed light on the untapped natural treasures within the botanical landscape of the UAE.

Keywords: *Horwoodia dicksoniae*, endangered plants, antioxidant properties, essential oil, chemical composition.