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## Effect of salicylic acid application on vegetative growth, phenolic metabolites, antioxidant capacity and essential oil composition in drought stressed *Eriosephalus africanus* L.

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Drought is among the most common agricultural stresses that significantly influence both growth and metabolic activities of plants. In this study an aromatic herb *Eriosephalus africanus* L. (Asteraceae) was cultivated under diverse watering regimens alongside foliar spraying with a plant hormone, Salicylic Acid (SA), at three concentrations (1, 2 and 3 mM) to observe the effect of drought stress and SA on its secondary metabolites. Total Flavonoid and Polyphenol contents (TFC and TPC, respectively) were calculated. TFC was raised by 54% in drought stressed plants sprayed with the highest SA concentration (3 mM) relative to control plants. Likewise, TPC increased by 35% in the same treatments. Consequently, the DPPH radical scavenging activity improved more than two-folds in the same treatment relative to control plants. UPLC-ESI-MS/MS profiles of the extracts of control plants were compared to those of treatment with highest TPC. Among identified polyphenols, 3,4-dicaffeoylquinic acid predominated in both samples, although detected in a greater percentage in the treated plants. The essential oil was hydro-distilled from the aerial parts of plants from all treatments; highest yield ( $1.05 \pm 0.03\%$  v/w) was obtained from drought stressed plants sprayed 2 mM SA. Artemisia ketone prevailed in the GC/MS chromatograms of all oil samples, with highest yield (42%) recorded in plants sprayed with the same SA concentration.

### Biography

Osama Salama is Vice President of Future University, Cairo, Egypt. He received his Doctor of Natural Sciences, (Dr. Nat. Sc.) in Phytochemistry from Institute of Pharmacy, Eidgenössische Technische Hochschule, Zürich, (ETHZ) Switzerland. His experience covers academia and industry. Prof. Salama spent about 20 years in R&D and QC for pharmaceutical drugs. His experience covers pharmaceutical development, preclinical development, clinical trials supplies and regulatory affairs. He has supervised and participated in innovation of two novel drugs for treatment of Schistosomiasis & Fascioliasis and HCV. He has published about 100 research papers in national and international Journals.

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