ANATOMICAL STRUCTURE OF SOME MEDICINAL HALOPHYTES

By

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B.Sc. Agric. Sc. (Horticulture), Ain Shams University, 2009

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ABSTRACT

Mona El Sayed Mohammed Abd Elhalim: Anatomical Structure of Some Medicinal Halophytes. M. Sc. Thesis, Agric. Botany Department, Fac. of Agric., Ain Shams Univ., 2016.

This work was achieved to study the morphological and anatomical structure of two medicinal and widely distributed desert halophyets growing in Cairo-Suez desert road, Wadi Hagool and El sokhna coast, *Zygophyllum album* (Zygophyllaceae) and *Nitraria retusa* (Nitrariaceae). The study included different plant organs (root, stem, leaf, and flower). It was found that the root of *Z. album* is diarch and the secondary xylem embedded in lignified cells. The secondary phloem contains a lot of druses. The young stem has epidermal cells having nearly isodimetric shape or slightly elongated tangentially with thick outer walls covered with thick cuticle layer and inner tangential walls are somewhat thicker than the anticlinal ones. The old stem has the ordinary secondary growth. The leaf of *Z. album* is fleshy, cylindrical. The epidermis covered with unicellular trichomes and provided with sunken stomata. The mesophyll is centric differentiated into photosynthetic tissue and water storage tissue. Each sepal has three traces, while one leaf trace for each petal and stamen. Each carpel has five vascular bundles. The flower has a toral nectary.

Nitraria retusa root is diarch and has a usual secondary thickening. There are groups of parenchymatous cells which store starch in the secondary phloem. Phellem is composed of 6 to 15 layers of cells having an isodiametric shape or elongated cells**.** The stem cortex is rich in tannin cells and the innermost cortical layer is differentiated into starch sheath. The leaf is unifacial, the mesophyll is rich with many idioblastes. Stomata are sunken, scattered on both abaxial and adaxial epidermis. Each sepal has three traces, each petal, stamen has one leaf trace. The vascular supply of the ovary and ovules was studied. The abovementioned anatomical features could be considered as anatomical function to adaptation to drought, salinity and heat stress.

Key words: *Zygophyllum album*, *Nitraria retusa*, Medicinal Halophytes, Morphological, Anatomical, Flower.

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