

ANATOMICAL AND CHEMICAL STUDY OF *ALTHEAE OFFICINALIS* L. SPREAD IN THE NORTH OF IRAQ

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ABSTRACT : This study first one in Iraq dealt with the anatomical and chemical study of *Altheae officinalis* growing in Iraq. The anatomy of stem, leaf, and petiole carried out. the special characters represented by the stellate trichomes and multicellular glandular trichomes diffuse in the epidermis of the stem, epidermis of leaf and epidermis of the petiole, also the druses crystals appear it in the leaf cells, in the stem the collenchyma layers are angular and very clear in the cross-section. As for chemical compounds found some important compound like as the Ferulic acid is a hydroxycinnamic acid found in the cell walls of plant also the Syringic acid as a natural type and Scopoletin is a coumarin found in the root, the other compound in the extract of *Altheae officinalis* leaves Quercetin and Diosmetin, this two compound from flavonoid group, also the Coumarin, P-coumaric acid and caffeic acid are an organic compound and the last one is the salicylic acid belongs to the phenolic acid.

Key words : *Altheae officinalis*, anatomy, HPLC.

INTRODUCTION

The species *Althaea officinalis* L. from Malvaceae family widely distributed in Asia like as Syria, Palestine, Iran and Turkey in addition distributed in Europe, North America and Northern Africa (Hutchinson, 1964). *Althaea officinalis* L. are annual or perennial herbs known as many common names like as Marsh, Mallow, Marsh mallows and Khitmi (Guest, 1966).

The name of *Althaea* comes from the Greek word *altho* means to cure, due to its medicinal feature and the high mucilage content, the plants since ancient Egyptians were used commonly for calming internal and external inflammations, ulcer of throats, many wounds and inflammations of skins (Grieve, 1984).

The species *Althaea officinalis* L. is used for many purposes also in Iraq and many countries in the world when the flowers and leaves are used in disease of the lungs and as a soothing, common cold and cough (Baytop, 1999). So the root extraction is used as a diuretic, therapy of stomach acid and esophageal, it is also used as externally to therapy the trauma, torsion (a im^oek *et al*, 2004).

The research showed few studies of this species so the present study aims at providing detailed of the anatomical feature for this species to complement the morphological descriptions in the flora of Iraq, also providing a study of important chemicals compounds of

the powder of parts of the plant include root, stem, leaves, and flowers.

MATERIALS AND METHODS

Anatomical study

Fresh material of *Altheae officinalis* L. was collected from Chemchemal region in the Sulaimaniya district (MSU). The epidermis were prepared followed Al-Hadeethi (2016) by washing the leaves with distilled water and put in 0.5% sodium hypochlorite for 10-20 min to remove the chlorophyll pigments, then washed off with distilled water, dehydrated by ethanol 70% and put on the slides and mounted by cover slides with Dextrin Plasticizer Xylene (D.P.X).

The stomatal index calculates follows as Stace (1965):

$$\text{Stomatal index} = \frac{\text{Number of stomata}}{\text{Number of stomata} + \text{Number of ordinary epidermal cells}} \times 100$$

For doing sectioning parts of root by hand section, the procedure was performed according to Hasan *et al* (2018), the fresh material of it was fixed in formalin acetic acid alcohol solution (FAA) at 48 hours and changed the solution after this time and put in the (70%) ethanol, then sectioned on and stained by a razor blade into thin and small pieces (4-6 cm) then putting in 0.5% sodium hypochlorite for 5 mint to clear the tissue and