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Article

Anatomical study of the roots of seven varieties of date palm (*Phoenix dactylifera* L.)

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ABSTRACT

This study was conducted at one of the private orchards to determine the variety through the anatomical characteristics of the roots; three palm trees were selected for each variety, identical, 15-18 years of age. The anatomical characteristics of the roots of seven date palm varieties were studied. The studied traits were circumferential circle diameter, phloem bundle length, xylem bundle length, next xylem, epidermis, sub-epidermal, fibrous bundle, cortex, and the diameter of parenchymal cells. Results show that the studied varieties differed in the studied anatomical characteristics. The Khadrawi variety was significantly superior in the characteristic of the surrounding circle diameter compared to the rest of the studied varieties, The Barhi variety was significant in the cortex and phloem bundle length, The Asabee Al-Aroos variety was distinguished in the characteristic of epidermis thickness, and the lowest values were in the variety Halawi. The Halawi variety was distinguished by the thickness of the sub-epidermal area, and the lowest values were in the Barhi variety.

Keywords: Anatomical study, roots, seven varieties, date palm (*Phoenix dactylifera* L.)

INTRODUCTION

The date palm (*Phoenix dactylifera* L.) belongs to the Arecaceae family and the order Palmacea. This family includes 200 genera, the most important of which are economically and in relation to human life, and four genera, including the genus Phoenix, to which the date palm belongs. Approximately 4000 species of date palm belong to these four genera[1].

The root system of the date palm is fibrous, widespread both vertically and horizontally, consisting of many adventitious roots attached to the base of the trunk and originating from the pericycle. Secondary lateral roots that arise from the peripheral region of the adventitious roots branch off, and the branching continues to reach the roots of the fifth degree in some areas of palm cultivation, forming the nutrition area[2, 3].

The anatomical structure of the roots of the date palm enabled it to withstand the lack of water in the soil, in addition to its ability to retain water more. Blum[4]