

**EQUISETUM ARVENSE L. EQUISETACEAE : OBSERVATIONS ON
MORPHOLOGY, ANATOMY AND GEOGRAPHICAL DISTRIBUTION
FROM SULAYMANIAH DISTRICT (IRAQ).**

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ABSTRACT

Common horsetail (*Equisetum arvense* L.) belongs family Equisetaceae a herbaceous perennial fern, consists of two types of stems; sterile and reproductive. The mature sporophyte of *E. arvense* L. was studied in ChemiRezan region within Sulaymaniyah district North of Iraq during Summer–2018. Morphological characteristics of the taxon were studied, a plant long up to 60-90 cm and 2 cm in diameter. Generally, the plant is common to grow along the banks of streams and irrigation canals. The anatomical characteristics of the fern (main axis, reproductive structures, and spores) were studied. Mature sporophyte has an aerial part and an underground rhizome part that is perennial, horizontal, branched, and creeping in nature. The objective of the current study is to describe the morphological and anatomical characteristics of the fern *Equisetum arvense* L. from Iraqi Pteridoflora.

Keywords : Field horsetail, Ferns, Equisetaceae, Iraq.

INTRODUCTION

Equisetum is the only living genus of family Equisetaceae (Smith *et al.*, 2006). A remarkable characteristic of *Equisetum* species is their ability to take up and accumulate silicon in their tissues (Husby & Wolkowiak, 2012). The species is commonly known as branched horsetail. Sickness caused by *Equisetum* poisoning is known as Equisetosis and its symptoms have been duplicated in feeding experiment on the horses (AL-Rawi, 1988). The genus *Equisetum* consists of 15 species of, conspicuously jointed, perennial herbs. Two subgenera have been recognized based on stomatal position and stem branching: subg. *Equisetum* (eight species; superficial stomata; stems branched) and subg. *Hippochaete* (seven species; sunken stomata; stems generally unbranched; Des Marais *et al.*, 2003). The taxa belonging to the order Equisetales are found in diverse habitats: open grassland, along marshes, streams, digest, river banks, wetlands, and swamps (Fraser-Jenkins, 2009; Brownsey & Perrie, 2015). *Equisetum arvense* L., commonly known as the field horsetail, is a bushy perennial herb native to the northern hemisphere (Sandhu *et al.*, 2010). In the flora of Iraq, the fern species were recorded which describe the morphology and geographical distribution from the north of Iraq (Townsend & Guest, 1966; Chakravarty, 1976). The taxon comes as no surprise that the 15 species which have survived to this day are subjects of interest for botanists of almost all specializations (Gierlinger *et al.*, 2007; Channing *et al.*, 2011). Many plants in this genus prefer wet

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collateral vascular bundles, and a crushed pith in which concentric vacuole occupied the center of the lateral branch. The reproductive structures: (Figs. 6 & 7)

The mature cones were crushed and slides were prepared for examining the mature spores. The spores were globules with 50 µm diameter, green color with 4 spatulas structures look like wings are known (elaters) attachment in a point with Episporic layer. For the first time in Iraq, the taxon *Equisetum arvense* L. was recorded anatomical and morphological characteristics and these are in accordance with recent scientific research on general characteristics of members belong *Equisetum* (Dines & Bonner, 2002; Sandhu *et al.*, 2010; Channing *et al.*, 2011; Yamanaka *et al.*, 2012; Pallag *et al.*, 2016). From the present study it was concluded that the presence of collenchyma tissue gives the elasticity of plant organs (Leroux *et al.*, 2011).

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