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INVESTIGATION OF PHENOLIC COMPOUNDS FROM THE LEAVES OF *CYPERUS ROTUNDUS* AND STUDY OF ITS ANTIOXIDANT ACTIVITY

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ABSTRACT : The importance of antioxidants has led many researchers to separate phenolic compounds and measure their effect on the stability of free radicals. In this study, the phenolic compounds were separated from the leaves of *Cyperus rotundus* and Investigation with HPLC. The Investigationby HPLC technique showed that the IMS extract contained phenolic compounds:Epigenesin, Qurestine, keampferol, catichin, Rutin, and gallic acid. After that, the antioxidant activity was studied by DPPH method and compared with standard ascorbic acid. Results showed that free-radical inhibiting was increased with increased concentration of phenolic compounds, with the highest inhibition (40.11%) and (45.51%) at concentrations (400 µg / ml) (500 µg / ml), respectively. These results show the importance of phenolic compounds in inhibiting free radicals and protecting humans from the risks of many diseases and cancer.

Key words : Phenoloc compounds, antioxidant activity*, Cyperus rotundus.*

INTRODUCTION

According to the World Health Organization (WHO), about 65-80% of the world's population in developing countries depends mainly on traditional medicines as primary means of health care, 20-35% are mainly residents of developed countries also benefit indirectly from natural products in health care (Ghourchian*et al*, 2016).

Antioxidants play an important role in preventing unwanted changes in food flavor, aroma and natural properties. It also reduces the risk of chronic diseases such as cancer, diabetes and inflammation (Vasundhara *et al*, 2008). Therefore, based on WHO guidance and on the global trend towards the use of natural substances and their extracts, research has been directed towards isolating new types of natural and high-efficiency antioxidant (Barlow, 1990). Plant phenolic antioxidants have multiple properties, which act as an effective inhibitor of free radicals on the one hand, and enhance the body's immunity to diseases such as Atherosclerosiss (Yang, 2007).

Cyperusrotundus Linn. (Family: Cyperaceae) is a multivalent plant widely used in traditional medicine around the world for treatment of various diseases (Singh *et al*, 2012). It includes a large number of races and species to more than 100 Genus and 3,200 species (Aminirad and Sonboli, 2008). The *Cyperusrotundus* plant is a herb that is well distributed in temperate tropical and subtropical regions and grows under a variety of soil conditions such as in waste lands, gardens, etc. but usually wet sandy soils (Lawal and Adebola, 2009).

The plant is widespread in Africa, such as Egypt, Libya, Tunisia, Morocco etc. and in Asia, such as Iraq, Yemen, Iran, Palestine, China, Japan and others. There are also in the western Indian Ocean such as the Comoros, Madagascar, etc. In Europe there are in Croatia, Greece, Romania, Serbia, France and others. United States and Mexico (Agarwal*et al*, 2016). The rhizome of *C. rotundus* has been recommended for the treatment of various clinical conditions, such as diarrhoea, dysentery, leprosy, bronchitis, amenorrhea, dysmenorrhea, fever, arthritis and blood disorders (Zhou, 2012 andSharma *et al*, 2014).

Phytochemical surveys of *Cyperusrotundus* revealed that it contained flavonoids, tannins, glycosides, furochromones, monoterpenes, sesquiterpenes, sitosterol, alkaloids saponins, terpenoids, essential oils, starch, carbohydrates, protein, separated amino acids and many other secondary metabolites (Al-Snafi, 2016).

The purpose of the study: Investigation of phenolic compounds of the leaves of *C. rotundus* and study the effectiveness of anti-oxidation and compare with ascorbic acid.