

Estimation of Truffles Extracts and Study the Biological Efficacy of *Ethyl 6-methyl-2-oxo-4-(2-thienyl)-1,2,3,4-tetrahydropyrimidine-5-carboxylate (EMOTTC)* as One of the Extracts against Ophthalmic Bacteria

¹Rana D. S. Alkamil, ¹Dawood CH. Al-Bahadily, ²Rasool Chalooob, ¹Falah Hassan Shari, ³H. N. K. AL-Salman^{2*}

¹Department of Clinical Laboratory Sciences, College of Pharmacy, University of Basrah, Iraq

²Department of pharmacology and toxicology, College of Pharmacy, University of Basrah, Iraq

³Pharmaceutical Chemistry Department, College of pharmacy, University of Basrah, Iraq

*Corresponding author E-mail: hennaserh@yahoo.com

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ABSTRACT

Context: The study indicated to the biological effectiveness of the compound is *Ethyl 6-methyl-2-oxo-4-(2-thienyl)-1,2,3,4-tetrahydropyrimidine-5-carboxylate (EMOTTC)*, as antibacterial which is one of the six compounds extracted from truffles. A number of organic solvents have been used as CH₃OH, C₂H₅OH, CHCl₃, C₄H₈O₂, and n-C₆H₁₄. The highest percentage of the extract was obtained in the extraction process when using methanol alcohol and the lowest percentage when using chloroform.

Objective: The biological efficacy of (*EMOTTC*) was investigated against different types of bacteria by taking higher Concentration of this compound and the lowest concentration of the compound.

Materials and methods: The purpose of the manuscript was to study bacterial inhibitory activity using MacConkey Agar as an agricultural medium. (*EMOTTC*) showed excellent bioavailability against different types of Gram-positive and positive bacteria. The *EMOTTC* compound has a strong effect on pathogenic bacteria, especially *Staphylococcus aureus*, *Haemophilus influenzae*, and *Pseudomonas aeruginosa*, which indicates that this compound can have multiple drugs uses as an alternative to antibiotics and sterilizers.

Results: Using the GC-Mas Spectrum technique, all the bio-organic compounds were diagnosis in the organic layer of the extract, then several methods were performed to determine the type and concentration of each organic compound alone. Spectroscopy of (*EMOTTC*) was studied, and its biological activity against Gram-positive and Positive bacteria was studied.

Conclusions: Six compounds were detected in Truffle extraction by GC-Mas technology. The same technique demonstrated the ability to isolate (*EMOTTC*) using different solvents and the effect of this biologically active compound was studied against three Types of bacteria that cause eye infections and ophthalmia.

Keywords: *Truffles* extract, *EMOTTC* phytochemical extracts, antibacterial activity.

Correspondence:

H. N. K. AL – Salman

Pharmaceutical Chemistry Department, College of Pharmacy, University of Basrah, Iraq

E-mail: hennaserh@yahoo.com

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INTRODUCTION

Truffles (in the Arabian Peninsula) or thunder (in Sudan), and truffles (in Libya, Tunisia, Algeria, Morocco, and Mauritania), is the name of a family of fungi called Terfeziaceae (Latin: Terfeziaceae) which is a seasonal wild fungus that grows in the desert after a rain of depth of 5 to 15 centimeters underground and used as food. Truffle weight usually ranges from 30 to 300 grams[1-4]. It is considered one of the tastiest and most valuable desert fungi. Chemical contents can be known through truffle analysis. The analyzes have proven to contain 9% protein, 13% starchy materials, 1% fat, and contain minerals similar to those in the human body such as phosphorous, sodium, calcium, and potassium. It also contains vitamin B2, B2 that is rich in vitamin A. It also contains a quantity of nitrogen in addition to carbon, oxygen and hydrogen, which makes the composition similar to the composition of meat. And the taste of cooked ones like the taste of lamb kidneys. It contains the amino acids necessary to build the cells of the human body [5-8].

Truffle extracts contain many biologically active organic compounds against bacteria that cause eye infections. The most important organic compound extracted is (*EMOTTC*), which is a truffle extract that has a high killing property Against various types of inflammatory bacteria that cause ophthalmia in the eyes [9,10].

Ophthalmia caused by bacteria is called bacterial conjunctivitis or bacterial conjunctivitis and it is one of the most common types of conjunctivitis in general, as the

infection is transmitted by contact with infected people or when infected with sinus or ear infections, and topical antibiotics are used to treat this problem, which may take between a week To two weeks. The most common types of bacteria that cause bacterial ophthalmia are *Staphylococcus aureus*, *Haemophilus influenzae*, and *Pseudomonas aeruginosa* [11,12].

Carboxylic esters containing sulfur and their derivatives are long-known compounds with antibacterial agents that have biological activity and a significant influence on a wide range of bacteria. This is due to the presence of the aromatic ring, which has spread widely due to its various uses as antibacterial and viral as well as infections and pain relievers [13,14].

Ethyl 6-methyl-2-oxo-4-(2-thienyl)-1,2,3,4-tetrahydropyrimidine-5-carboxylate is a sulfur beta-lactam compound, and it is an effective substance against a number of biological activities due to its selection. *Ethyl 6-methyl-2-oxo-4-(2-thienyl)-1,2,3,4-tetrahydropyrimidine-5-carboxylate*, as a powder whose other chemical name is *ethyl 6-methyl-2-oxo-4-(thiophen-2-yl)-1,2,3,4-tetrahydropyrimidine-5-carboxylate* and *6-Methyl-2-oxo-4-thiophen-2-yl-1,2,3,4-tetrahydro-pyrimidine-5-carboxylic acid ethyl ester* and *ethyl 4-methyl-2-oxo-6-(2-thienyl)-1,3,6-trihydropyrimidine-5-carboxylate* and has the molecular formula C₁₂H₁₄N₂O₃S, molecular weight 266.32 g / mol, has a melting point of 100-105 °C Its chemical is now classified as an antibacterial and antifungal. These