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CHEMICAL DETECTION OF SOME ACTIVE COMPOUNDS FOUND IN SOME LARGE FUNGI USING HPCL TECHNOLOGY

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Abstract: The current study aimed to search for macrofungi, through which Basidiomycetous fungi and Ascomycetous fungi were obtained in some districts of Salah al-Din Governorate (Al-Alam, Dujail, Tikrit, Al-Butaama, and Al-Mahzam districts) during the period 2023-2024. The results of quantitative estimation of some compounds were shown. Effectiveness of the identified fungi is that the fungus Montagnea renaria recorded the highest content of phenols, reaching 165.99 mg/100 ml compared to the fungal bug. At the same time, the fungus Pisolithus arhizuia recorded the lowest content of phenols, reaching 98.5 mg/100 ml. Also, the mushroom Montagnea renaria recorded the highest content of flavonoids, reaching 96.88 mg/100 ml, while the mushroom Montagnea renaria recorded the lowest content of flavonoids, reaching 52.6 mg/100 ml. The mushroom Montagnea renaria recorded the highest content of terpenes, reaching 3.61%, while the mushroom Pisolithus arhizuia recorded the lowest content of terpenes, reaching 0.22%.

Keywords: HPLC, Macrofungi.

1. Introduction:

Macrofungi are known as fungi that produce fruiting bodies above or below the soil that are visible to the naked eye, that is, without the need for a microscope (Redhead)[1]Fungi are described as unicellular or multicellular thallus organisms composed of cells with walls containing chitin. They are diverse in nutrition and adopt different methods to obtain food, such as sapdrotophisum, mutualism, and parasitism [2][3]. There has been increased interest in these two main phyla, which are Basidiomucota and Ascomicota [4].

2. Materials and Methods:

Total Flavonoid Content

The total content of flavonoids in the crude fungal extracts was estimated by measuring aluminum chloride in the presence of rutin. 1 ml of ethanol and 4 ml of distilled water were added to 50 microlitres of the crude extract in test tubes, then 0.3 ml of a 2% aluminum chloride solution was added. The tubes were shaken and incubated at room temperature for 10 minutes, then 2 ml of sodium hydroxide solution (1 M) was added to the total mixture and the volume was supplemented with distilled water to 10 ml. The absorbance was measured at a wavelength of 510 nm. The total flavonoid concentration was calculated according to the calibration curve for the rutin supplement, in mg/g dry weight for each extract.

Estimation of total terpene content:

I followed the method presented by the scientist (Narayan 2017) to calculate the percentage of terpenes in plants, which stipulates taking (1.5 gm) of the plant sample and adding (7 ml) of a mixture of (acetonitrile methanol) to it, then placing it on a vibrating device for half an hour, after which the sample is left In the

dark for (24 hours), the sample is placed in a centrifuge at a speed of (6000 rpm) and (5 ml) is taken from it and (1.5 ml) chloroform is added to it + (0.5 ml) concentrated sulfuric acid and mixed well for one minute (in case If heat occurs, the tube must be cooled by placing it on ice so that the period does not exceed 5 minutes. After that, methanol is added to the sample to complete the volume to (10 ml).

A standard solution of linalool is prepared at several concentrations and read with a spectrophotometer at a wavelength of 538 nm. The readings are recorded, after which the sample is read, its absorbance is recorded, and the percentage of terpenes is calculated.

Estimation of total phenolic content

The sample was taken after drying it in the shade at room temperature for 24 hours, grinded with an electric blender to a fine powder, weighed 5 grams in the bag of the extraction device, placed in the Soxolite device, and extracted with 300% ethanol at a temperature of 50 - 55 °C for 3 - 4 hours. Filter the extract with Whatman No. filter paper. 1, Concentrate the extract using a rotary vacuum evaporator under low pressure and at a temperature of 40 °C.

To estimate total phenols using gallic acid and Folen's reagent

Folin – Ciocalteu reagent, mix 150 microlitres of the crude extract in a test tube with 500 microlitres of Folin's reagent, then add 1.5 ml of 20% sodium carbonate, and after mixing well, complete the volume to 10 ml, leave it for two hours. The absorbance is measured at wavelength 765. Nanometer. Express the results as milligrams of gallic acid equivalent per gram of dry weight Baba and Malik (2015)

3. Results and discussions

The results of quantitative estimation of some active compounds of the identified fungi showed that the mushroom Montagnea renaria recorded the highest content of phenols, reaching 165.99 mg/100 ml compared to the bug of fungi. At the same time, the fungus Pisolithus arhizuia recorded the lowest content of phenols, reaching 98.5 mg/100 ml. Also, the mushroom Montagnea renaria recorded the highest content of flavonoids, reaching 96.88 mg/100 ml, while the mushroom Montagnea renaria recorded the lowest content of flavonoids, reaching 52.6 mg/100 ml. The mushroom Montagnea renaria recorded the highest content of terpenes, reaching 3.61%, while the mushroom Pisolithus arhizuia recorded the lowest content of terpenes, reaching 0.22%.

4. Conclusions

1. The spread of large basidiomycete fungi in Salah al-Din Governorate, especially the basidiomycete fungi, whose numbers exceed the cystic fungi.
2. Conduct further research and studies on the active compounds in macrofungi as an important source in the medical and pharmaceutical fields.

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