

Study of the active compounds in the *Pituranthos chloranthus* (al-heisha area)

Taffaha A. Arhouma^{1*}, Abdulrazziq Ahmad Shahhat² and Mona. M. Abdalla Khanfar¹

¹Chemistry Department, Faculty of Science, Derna University, Derna, Libya

²Botany Department, Faculty of Science, Derna University, Derna, Libya

Correspondence Author: Taffaha A. Arhouma

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Abstract

This research dealt with the detection of the active substances, some of which are considered antioxidants in the local iris plant, and the local iris plant was identified from the Heisha region used in this research. Oxidation According to the results of other research, tannins, flavonoids, and resins are antioxidants. The results showed the high antioxidant activity of the extract, and this explains the medical importance of this plant in the treatment of many diseases.

Keywords: *Pituranthos Chloranthus*, active substances, free radicals, antioxidants.

Introduction

Pituranthos Chloranthus is of the Apiaceae family (also called celery). This family is considered the most developed within the order of Araliaceae. It is essential and very homogeneous, but it is neglected and not well represented in the desert, specifically in its middle section, and includes more than 275 genera, under which about 2000-3000 plant species fall [2], most of which are found in the temperate regions of the northern hemisphere and rarely in the tropics. This is thanks to studies [6] Medicinal plants in the Arab region and the world occupy a distinguished position in agricultural and industrial production and are receiving increasing attention in many countries, whether producing or importing medicinal plants first used chemical examination, which showed the presence of most secondary metabolites. next, the Preparation of methanol, ethanol, and aqueous extracts by soaking and the extraction of essential oil through hydro-distillation. In turn, the yield of each extract has been recorded; the highest percentage has been associated with the methanolic extract at 5 %, followed by 4.5 % of the aqueous extract, and the ethanolic extract by 3.46 %, the yield recorded in essential oil was 0.4 %. The plant's moisture content was estimated at 43.8 %. Secondly, phenol, flavonoids, and tannins were estimated in aqueous, methanolic, and ethanolic extracts [4]. The highest polyphenol content was found in the methanolic extract (14.65 +- 2.33 mg AG E / g MS), while the lowest value was spotted in the aqueous extract (11.22-0.98 mg AG E / g MS). The quantitative estimate of flavonoids was its highest value in methanolic extract an estimate of (2.9885-0.035 mg Q E / g MS) and the lowest value was found in the aqueous extract (0.7494-0.013 mg Q E / g MS), whereas the highest value concerning tannins was spotted in an ethanolic extract with an estimate of (5.31 +- 0.16 mg CA E / g MS) and its lowest value in aqueous extract (4.04 +- 0.30mg CA E / g MS) Thirdly, in terms of biological efficiency, the aqueous, methanolic and ethanolic extracts showed a moderate antioxidant activity where the IC50 was estimated at 0.54-0.57-0.59 mg/ml respectively. In

contrast, the essential oil antioxidant activity was low. Also estimated to be 4.49 mg/ml. the antibacterial activity for four bacterial strains (*Escherichia coli*, *Pseudomonas aeruginosa*, *Staphylococcus aureus*, and *Bacillus cereus*) was positive only with the pure essential oil and was not with the rest of the extracts. The best diameter inhibition was recorded at 100 % concentration with a value of 14.9 mm in *S. aureus*. Keywords: *Pituranthos Chloranthus* Secondary metabolism antioxidant activity Antibacterial activity [4] Materials and Methods The sample was collected from the Al-Hishah area. The sample was fresh for the study. This was a study inside the laboratories of the University of Derna, Al-Qubba branch in 2022, in the period between March and April Laboratory materials and equipment: test tubes, water bath, lead acetate, Mayer's reagent, Fehling's A.B reagent, Dragendorff's reagent, ethyl alcohol, and potassium hydroxide.

The results and discussion

First / using the Dragendorff reagent, where its addition led to the appearance of an orange precipitate as evidence for the presence of alkaloids in *Pituranthos Chloranthus* [8].

Secondly/ using Mayer's reagent, where the appearance of a white precipitate is evidence of the presence of alkaloids, and the formation of a white precipitate has been observed in the *Pituranthos Chloranthus* used in this research [6].

Alkaloids are nitrogenous compounds that are colorless, odorless, and have a bitter taste. The plants they contain are among the most important groups of medicinal plants because of their therapeutic efficiency, and if found in small quantities in plants [10] They are also natural organic nitrogen compounds, and morphine is an example. The first is about the use of alkaloids in the medical field this alkaloid was isolated in 1817 from the poppy plant [12].

Detection of glycosides

After mixing part of Fehling's reagent in a water bath with plant extracts for ten minutes, it was noticed that no red precipitate

appeared, which is evidence of the absence of glycosides. Detection of "tannins" tannins Detection of glycosides After mixing part of Fehling's reagent in a water bath with plant extracts for ten minutes, it was noticed that no red precipitate appeared, which is evidence of the absence of glycosides.

About tannins using lead acetate, as the appearance of a white, gelatinous precipitate is evidence of the presence of tannins in the *Pituranthos Chloranthus* [1], and the four types of Libyan dates under study gave a response to this test, and therefore it can be said one *Pituranthos Chloranthus* is of its active ingredients It is the tannin. It is believed that tannins play a role in drinking water, as is the case in colloids, thus protecting the plant from dehydration, and it is believed that some of its compounds have an antioxidant role, that is, they protect the important vital compounds of the plant, and they protect the body from infection with microorganisms [3]. They are defined as non-nitrogenous and amorphous organic compounds with a complex chemical composition that is difficult to separate and purify [5].

Detection of saponins

After preparing the aqueous extracts of *Pituranthos Chloranthus* the test tubes containing the extracts of dates were shaken and it gave a response to the shaking and the foam appeared as evidence of the presence of saponins, but the foam was not thick as evidence of the presence of a small number of saponins in the *Pituranthos Chloranthus* [7].

Detection of flavones

As follows: The first solution was prepared by dissolving 1 gm of dried *Pituranthos Chloranthus* in 5 ml of 95% ethyl alcohol, then filtering the solution after 6 hours. The second solution was prepared by adding 10 ml of 50% ethyl alcohol to 10 ml of 50% potassium hydroxide solution. Mix equal amounts of the above two solutions and the appearance of yellow color indicates the presence of flavones [9]. The results of this research showed that the solutions of the *Pituranthos Chloranthus*, contain flavones according to this test, as the color appeared clearly in the *Pituranthos Chloranthus*, and flavones are widely distributed in nature, especially in higher plants, and they are found either in free-form or as glycosidic derivatives [11], and flavones are characterized by their effects Various medical uses, including its use as a stimulant for the immune system, and it also works to inhibit the growth of cancer cells in humans. In addition, it possesses anti-microbial properties, due to its ability to dissolve proteins and destroy the cell membrane [14], and in general, the studies are extensive in the medical field shown various activities, including anti-cancer, anti-viral, and treatment of side effects of diabetes, as it works to strengthen the immune system and increase anti-tumor activity, and anti-bacterial and anti-fungal. These therapeutic features gave it great importance in the pharmaceutical industry [13]. The results of this research regarding the chemical detection of the active substances in *Pituranthos Chloranthus* this research showed a positive response to the chemical detections used. This is consistent with [2] who, through research conducted on the *Pituranthos Chloranthus* in the State of Algeria, showed that extracts contain active groups such as soaps, tannins, flavonoids, alkaloids, phenols, and peptides.

Conclusions

Through the detection of the active substances in the local Libyan *Pituranthos Chloranthus*, it was found that the *Pituranthos Chloranthus* contained resins, alkaloids, flavonoids, tannins, and saponins, some of which are considered antioxidants according to the results of previous research, also through this Research We recommend conducting more research on the morphological characteristics and the different Libyan *Pituranthos Chloranthus* plants and trying to extract these active substances and estimating the total amount of active substances for each type of local plant, especially medicinal ones.

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