The effect of the Laurus nobilis plant on two types of fungi that cause human diseases

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**ABSTRACT**

The study was carried out to assess the quantity of one plant, *Laurus nobilis* for their use as medicine and their microbial effects. Plant samples were collected in Autumn 2017 from Al-Jabal Al-Akhdar in Libya.

The extracts were screened for their biological activities against fungi strains *Penicillium notatum* and *Aspergillus niger*.

The results showed that anti fungal activity did not effect on *Penicillium notatum* and *Aspergillus niger*.

**Keywords:** *Laurus nobilis*, Antifungal activity.

تأثير نبات الرند
علي نوعين من الفطريات الممرضة للإنسان *Laurus nobilis*

ملخص:

أجريت هذه الدراسة لتقييم نبات الرند *Laurus nobilis* من حيث تأثيره كدواء وتأثيره الميكروبي.

حيث جمعت عينات نباتية في خريف 2017 من الجبل الأخضر في ليبيا.

و تم فحص المستخلص النباتي لمنعف أنشطة البيولوجية ضد سلالات الفطريات *Penicillium notatum* و *Aspergillus niger*.

قد أظهرت النتائج أن النشاط المضاد للفطريات لم يؤثر على

الكلمات المفتاحية: نشاط مضاد للفطريات.
INTRODUCTION

The use of plants as source of remedies for the treatment of many diseases dated back to prehistory and people of all continents have this old tradition. The search for agents to cure infectious diseases began long before people were aware of the existence of microbes. These early attempts plants or their extracts and many of these herbal remedies proved success [9]. World Health Organization survey indicated that about 70 - 80% of the world’s population rely on nonconventional medicine, mainly of herbal sources, in their primary healthcare. This is especially the case in developing countries where the cost of consulting a western style doctor and the price of medication are beyond the means of most people [6]. L. nobilis is a plant of industrial importance, used in foods, drugs, and cosmetics. The dried leaves and essential oils are used extensively in the food industry for seasoning of meat products, soups and fishes. Medicinal plants are important in pharmacological research and drug development [11]. Many plants possess antimicrobial activities and are used for the treatment of different activities and are used for the treatment of different diseases [4] L. nobilis L. is the member of family Lauraceae. This aromatic tree is 2m to10m high and which comprises 32 genera and about 2,000-2,500 species. Laurus is also known as sweet bay, bay laurel, Grecian laurel, true bay and bay tree [7].

The aim and importance of study:
Evaluation of antifungal activity using leaves and stems of Laurus nobilis extracts against Penicillium notatum and Aspergillus niger.

MATERIALS AND METHODS
Leaves and stems of every species of selected plant were separated and washed with distilled water several times, then dried in open air. The dried plants were ground using a mechanical grinder [1], [2].
Laurus nobilis

The powdered materials of *Laurus nobilis* were extracted with methanol 50 grams of each plant powder were added to 150ml of methanol (80% w/v). Crude extract were evaporated at 45°C with the rotary evaporator the extracts were collected and stored at 4°C until further use [1], [2]. The antimicrobial activity of the plants extracts was determined using the agar well diffusion method [21], where potato Dextrose Agar (PDA) plates seeded with fungal strain the PDA medium was poured into the sterile petri plates and allowed to solidify. The test fungal culture was evenly spread over the media by sterile cotton swabs [17], on each plate wells were made by sterile standard cork borer. Each well was filled with 100μl of the different concentrations (0.20, 0.40, 0.60 and 0.80 g/ml) of studied plants extracts and the plates were then incubated 48-72 h at 25°C for fungi. The of inhibition zones were measured, the results are presented as mean of triplicate. The minimal inhibition concentration (MIC) values were evaluated according to published procedures [19], [10], [8]. The minimal inhibitory concentration(MIC) was determined only with micro-organisms that displayed inhibitory zones. MIC was determined by dilution of the plants extracts and pipetting 100μl of each dilution into wells dilutions of the extracts within a concentrations range of (0.20 – 0.80 g/ml).

MIC was defined as the lowest concentration that inhibited the visible microbial growth [15].
Results and Discussion

All studied plants extracts don't effect on Fungi (Figures 4 and 5). Some studies concluded the volatile compounds from plants, especially essential oils have antimicrobial, fungicidal and insecticidal activities [23],[12],[18], they frequently have been reported to be antimicrobial agents [13], [5], [22], [16], [20], [14], [3].

Figure (2) Antimicrobial activities of different concentrations of the studied plant extract against *Aspergillus niger*

Figure (3) Antimicrobial activities of different concentrations of the studied plant extract against *Penicillium notatum*
Table (1) Antimicrobial activities of different concentrations of the studied plant extract against *Aspergillus niger*

<table>
<thead>
<tr>
<th>Samples</th>
<th>Conc</th>
<th>Laurus nobilis</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>stems</td>
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<td>Laurus nobilis</td>
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<td>0.20g/ml</td>
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<td>0.80g/ml</td>
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Where inhibition zone diameters in (mm)  N.A : no activity

Figure (4) Antifungal activities of the studied crude extracts of *Laurus nobilis* plant against *Aspergillus niger*.
Table (2) Antimicrobial activities of different concentrations of the studied plant extract against *Penicillium notatum*

<table>
<thead>
<tr>
<th>Samples</th>
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Where inhibition zone diameters in (mm) N.A : no activity
REFERENCES


