

Laurus nobilis Has Antibacterial Activity Against *Staphylococcus aureus*

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Abstract— *Staphylococcus aureus* infection is of great importance on clinical view and prevalence in medical care centers, so, its prevention is also important. The main aim of this study was to determine the in vitro antibacterial activity of hydroalcoholic solution of *Laurus nobilis* extract against *Staphylococcus aureus*. *Laurus nobilis* extract was assayed for antibacterial activity by agar well diffusion and agar dilution methods in order to determine the zone diameter of inhibition compared with tetracycline zone diameter of inhibition as control. The extract showed antibacterial activity against *Staphylococcus aureus*. The results indicate the antibacterial use of the *Laurus nobilis* extract for the treatment of *Staphylococcus aureus* infection.

Keywords— *Laurus nobilis*, *Staphylococcus aureus*.

I. INTRODUCTION

THE Lauraceae family comprises over 2,500 species which occur within the subtropics and tropics of Eastern Asia, South and North America. Most species possess aromatic roots, stems and fruits. One of the most well-known and most frequently used plants from this family is *Laurus nobilis* L., also called bay laurel. *L. nobilis* is a species held in high esteem since ancient times. *Laurus nobilis* L which comprises numerous aromatic and medicinal plants [1]. *Laurus nobilis* L. native to Mediterranean regions is also known as sweet bay, bay laurel, Grecian laurel, true bay, and bay. The dried leaves are used extensively in cooking, and the essential oil is generally used in the flavourings industry [2]. One of the main active constituents of *Laurus nobilis* is 1,8-cineole [3]-[5]. Other constituents include sesquiterpenes (costunolide and zaluzanin D), two guaianolides (dehydrocostus lactone and zaluzanin D), p-menthane hydroperoxides (including (1R,4S)-1-hydroperoxy-p-menth-2-en-8-ol acetate), costunolide, dehydrocostus lactone, reynosin, santamarine, 3 α -acetoxyeudesma -1,4(15),11(13)-trien-12,6 α -olide, and 3-oxoeudesma -1,4,11(13)-trien-12,6 α -olide [3],[6],[7]. Studies show that the leaf of *Laurus nobilis* traditionally used as herbal medicine to treat rheumatism,

earaches, indigestion, sprains, and to promote perspiration [8]. Research shows that, the extracts of *L. nobilis*, showed higher inhibitory activity against the yeast fungus than the standard antifungal nystatin [9]. The reports coming from studies conducted to elucidate the effects of *Laurus nobilis* extract against *Staphylococcus aureus* still conflicting, so, the present study was carried out to show the effects *Laurus nobilis* extract on antibacterial activity against *Staphylococcus aureus*.

II. MATERIAL AND METHODS

We used *Laurus nobilis* extract in this study. The powder of the plant first was prepared and stored in a sterile glass bottle at room temperature. 20% ethanolic solution of the *Laurus nobilis* extract was prepared and used in our study. Antibacterial activity was determined by agar well diffusion method. Sterile Mueller-Hinton agar plates (30 ml per plate) were prepared. Two wells (each of 6 mm diameter) were bored on the surface of the agar media on each plate. 20 μ l of extract was dropped into each appropriately labelled well. Tetracycline (20 μ g/disc) was used as the control. The inoculated plates were allowed to stand at room temperature for 45 min to allow the diffusion of the extract into the agar to proceed before growth of the organism commenced. The plates were incubated at 35°C for 24 h. The assessment of antibacterial activity was based on measurement of the zone diameter of the inhibition (ZDI) formed around the well. The ZDI of extract were compared to tetracycline zone diameter of the inhibition.



Fig. 1 *Laurus nobilis* leaves

III. RESULTS

The *Laurus nobilis* extract showed antibacterial activity against *Staphylococcus aureus*. Zone diameter of the inhibition of *Laurus nobilis* extract was comparable to the zone diameter of the inhibition of tetracycline.

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IV. DISCUSSION

The results of current research show that hydroalcoholic solution of *Laurus nobilis* extract has antibacterial activity against *Staphylococcus aureus*. In line with this finding, research suggests that *Laurus nobilis* has antibacterial effects due to carvacrol, 1,8-cineole, fenchone, and trans-anethole [5]. Also, the antimicrobial, analgesic, anti-inflammatory, antitumoral, acetylcholine esterase inhibiting properties of the essential oil of *Laurus nobilis* L. have been reported [10]-[13]. Research show that, *Laurus nobilis* can be used in treating diabetes and preventing migraine [14]. On the other hand, oil of *Laurus nobilis* was found to inhibit the growth of *Phytophthora infestans* in a dose-dependent manner [12]. The main component of laurel essential oil (1, 8-cineole) is found in the essential oils of many plants and is used in food as a sweetener, in aromatherapy as a skin stimulator, and in the treatment of bronchitis and asthma [15].

V. CONCLUSION

We have shown that *Laurus nobilis* extract has antibacterial activity against *Staphylococcus aureus*. The results indicate the antibacterial use of the *Laurus nobilis* extract for the treatment of *Staphylococcus aureus* infection.

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