In Vitro Inhibitory effect of Alcoholic and Aqueous Extract of Umbilicus Intermedius Boiss (Nafe Venus) on *Escherichia Coli*

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INTRODUCTION

Umbilicus intermedius boiss (nafe venus) is important medicinal plants, especially distributed in southern regions of west Iran Ilam. Nafe venus is from crassulaceae family and thriving in the desert, and has a greenish-pink flowers, which is traditionally used to treat various infectious disease. In recent years, due to drug resistant using of medicinal plants against bacterial infectious has received attention as valuable tool to gain insight into the function of anti bacterial and improvement of their functionality [1-3]. Indeed, the emergence of antibiotic-resistant strains of *Escherichia Coli* is causing more attention to the antibacterial properties of medicinal plants. Antibacterial and antifungal effects of some plant extracts have been shown in several studies. Traditionally, Umbilicus intermedius boiss has been used to treat infectious in the West region of Iran, In the present study, we aim to evaluated of inhibitory effect of alcoholic, aqueous and chloroform extract of Umbilicus intermedius boiss (nafe venus) on *Escherichia Coli* in vitro [4-6].

METHODS

Sample Collection: 30 Clinical samples of *Escherichia Coli* were collected from hospitals in city of Ilam. The samples were confirmed by using standard methods of diagnosis and were cultured in TSB medium and were kept at minus 20 degrees Celsius [7].

ALCOHOLIC EXTRACT

The plant was collected from the desert south of Ilam and washed and dried away from direct sunlight in the shade and then 10gms of plant powder mixed in 250 ml of 80% ethanol solution for 48 hours at room temperature on surface of the horizon was shaken (150 rpm). The extract cleared two times by filter paper and the alcohol was evaporated by using a rotary machine. Then 10% dissolved of extract prepared in 80% ethanol and stored in dark glass container at 4°C [8].

AQUEOUS EXTRACT

10 grams of the herb powder was mixed with 200 ml of boiling distilled water and was put on the heater stride device for 20 minutes along with mixing. Then the mixture was filtered using a fine fibred sterile cloth and was centrifuged at 3500 rpm for 15 minutes. The mixture was left in open air until the solvent have completely evaporated [6].

CHLOROFORM EXTRACT

10gms of plant powder mixed in 350 ml of chloroform for 48 hours at room temperature on surface of the horizon was shaken (150 rpm). The extract cleared two times by filter paper and the chloroform was evaporated. Then 10% dissolved of extract prepared in chloroform and stored in dark glass container at 4°C.

DISK DIFFUSION METHOD

First a suspension of the bacteria being studied was prepared with a concentration of 0.5 McFarland and using the a sterile valve on top of the plates containing Mueller Hinton Agar culture media, the bacteria were cultivated. After the surface of the plate had dried, paper disks with a diameter of 6mm, impregnated with 10µL of the extract with different concentrations were placed on the plates and they were incubated for 24 hours at 37˚C. After incubation the inhibition zone was measure using a ruler [9].

RESULTS AND DISCUSSION

Escherichia Coli is one of the main infectious agents in hospitals that every person catches it one time on her life [11]. Also this bacterium is one of the main infectious agents in patient with weakness immune system [12]. Since conventional antibiotics have side effects, drug resistance, and high economic costs on society and family, While their popularity provided use of herbs.

Today, much attention has been using herbs. In this study, was studied the inhibitory effect of aqueous and alcoholic extracts of Umbilicus intermedius boiss against *Escherichia Coli* on in vitro. According to the traditional use of the plant for treatment of infectious, expected to the extracts have strong antimicrobial effects.

Inhibitory effect of alcoholic, aqueous and chloroform extract was considered in Muller Hinton Agar medium by disk diffusion method. Inhibitory zone of alcoholic extract on *Escherichia Coli* was 13 mm. While zone of growth inhibition of aqueous and chloroform extract were not observed.

The alcoholic extract had higher antibacteial effect than the aqueous and chloroform extract.



Figure 1. Umbilicus intermedius

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