Anti Bacterial Activity Of Daucus Carota, Jasminum Auriculatum & Pithecellobium Dulce Against Laptop Keyboard Surface Bacteria

Vulasi Indrani, Madhuri T, Lakshmi Kalyani B, Kumari Chitturi CH. M, Suvarnalatha Devi P.

Environmental Microbiology Laboratory, Department of Applied Microbiology, Sri Padmavathi Mahila Visvavidyalayam (Women's University), Tirupati-517502, Andhra Pradesh, India
Email: drsuvarnapallipati@gmail.com

ABSTRACT: The aim of the study is to evaluate the combined anti bacterial activity of Daucus Carota, Jasminum auriculatum and Pithecellobium dulce against lap top keyboard surface bacteria. The keyboard is a very dynamic environment,Since the keyboard is constantly in contact with human hands, there will constantly be a stream of things leaving the hands and entering the keyboard. The plants chosen for the study are having good pharmacological activities. In the present study, the bacteria were isolated by swabbing on the key board of Laptop in the Microbiology lab. Three plants were selected to evaluate their anti bacterial activity against lap top keyboard surface bacteria. Disinfectants were used to clean key board. A total seven organisms were isolated and grown on nutrient agar media. The plant leaves were shade dried and mechanically grinded and allowed for methanol extraction. Anti bacterial activity was assessed by Agar well diffusion method against all the isolates. Among all the isolates plant extract forms inhibition zone on IS 2 (7 mm, 6mm, 4 mm for 50 mg/ ml, 100 mg/ml, 200 mg/ ml), IS 4 (7mm, 6mm, 4mm for 50 mg/ ml, 100 mg/ml, 200 mg/ ml).By this study, it is concluded that plant extract is the replacement of Chemical disinfectants.

Keywords : Laptop keyboard, Daucus Carota, Jasminum auriculatum, Pithecellobium dulce, Agar well diffusion method, Chemical Disinfectants

1 INTRODUCTION

Microbial research suggests that computer mice and keyboards are, in fact, prime real estate for germs. Most of the bacteria found by researchers are types that tend to live on people, usually in our skin and in our mouths and nasal passages. So it is likely that most of the bacteria came from our hands. Studies have shown, however, that the presence of serum or albumin (known contaminants on keyboards touched by wet gloves), and a low temperature, with high humidity results in longer lifetime of bacteria on contaminated surface. Many nosocomial pathogens can also survive on dry inanimate surfaces for months [1] .Keyboards have become reservoirs for pathogens because of increased use of computers in the patient areas [2],[3],[4],[5],[6],[7].In order to properly disinfect these areas, you should use disinfecting wipes which are the natural formulations. plant extracts are the good replacements of chemical disinfectants . Plants are rich in a wide variety of secondary metabolites such as tannins, terpenoids, alkaloids, flavonoids, glycosides, etc., which have been found in vitro to have antimicrobial properties [8][9]. Present study was conducted to evaluate the combined anti bacterial activity of Daucus Carota, Jasminum auriculatum and Pithecellobium dulce against laptop key board bacteria. These plants have various pharmacological activities.

2 MATERIALS AND METHODS

2.1 Isolation laptop keyboard bacteria

The study was carried out at the department of Applied Microbiology, Sri Padmavathi Mahila Visvavidyalayam, Tirupati A.P India. The bacteria were isolated by swabbing the key board of Laptop. Sterile cotton swab moistened with sterile saline was rotated in clockwise direction on the key board of Laptop twice and then isolated immediately on Nutrient agar medium (Himedia) .The media were incubated at 37°C for 24-48hours.

2.2 Collection of plant material

Daucus Carota, Jasminum auriculatum and Pithecellobium dulce fresh leaves were collected from in and around areas of Tirupati, chittoor District, A.P, India.

2.3 Preparation of Plant extracts

The fresh leaves were allowed for shade drying and allow them to make coarse powder by means of mechanical grinding. Daucus Carota, Jasminum auriculatum and Pithecellobium dulce leaf powders were mixed with each other (33g Daucus Carota, 33g Jasminum auriculatum, 34g Pithecellobium dulce) to make 100g.The Extraction was performed with methanol for 48 hours at a temperature not exceeding the boiling point of the solvent. Extract was filtered and it was stored in a refrigerator for further use.

2.4 Antibacterial sensitivity testing using Agar diffusion method

Antibacterial sensitivity testing using Agar diffusion method was the modified by [10].0.5 cm diameter wells were punched in a medium and filled with plant extract at three different concentrations are (0.05 g/ml, 0.1g/ml, 0.2g/ml) and positive control as ciprofloxacin.

3 RESULTS AND DISCUSSION

3.1 Isolation of Laptop Bacteria

Sample was screened for the antibacterial activity with isolated bacteria. The laptop keyboard bacteria were isolated on nutrient agar as shown in (Fig 1). The plates were incubated in an upright position at 37^{o}C for 24 hours and the zone of inhibition was measured (in mm diameter), ciprofloxacin (1 mcg/ ml) was used as positive control .Total seven isolates were obtained and was named as IS 1, IS 2, IS 3, IS 4, IS 5, IS 6,IS7 respectively. They were illustrated in (Fig 2).

Fig. 1. *Swabbing on nutrient plate*

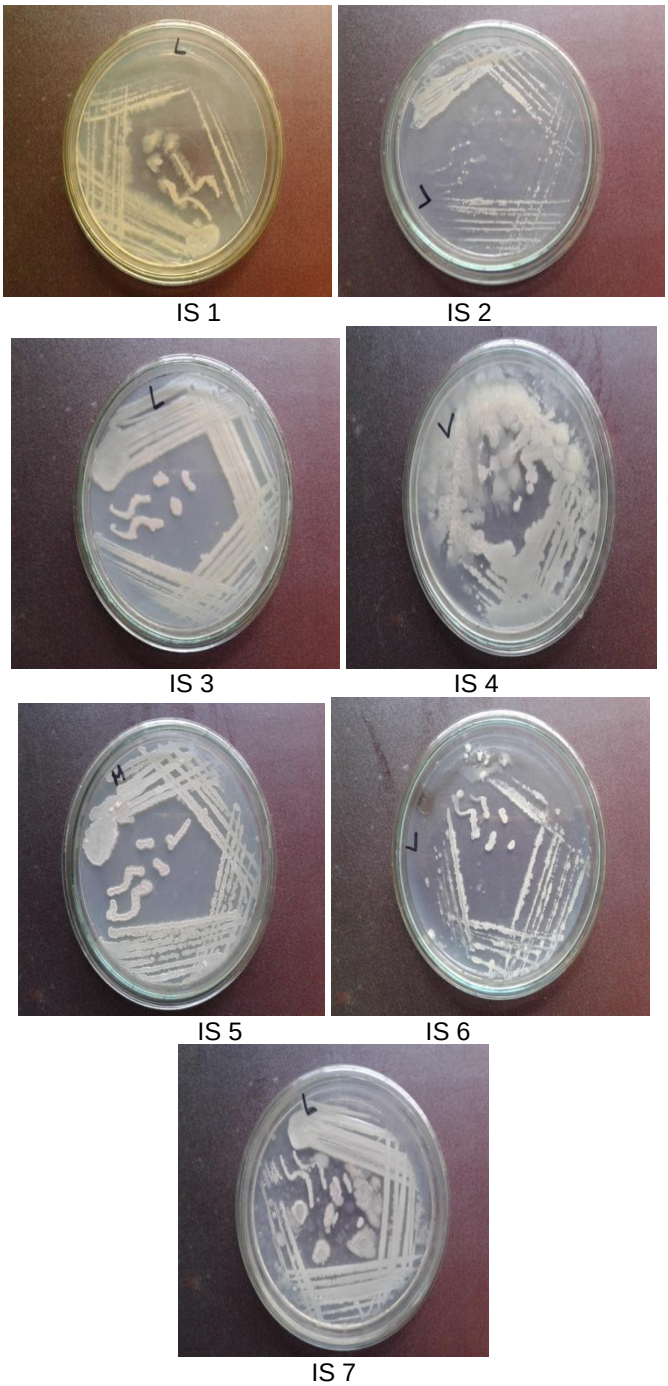

Fig 2 *Isolates from Laptop keyboard surface*

3.2 Preparation of extract and assessment of anti bacterial activity

Methanolic extract of Daucus Carota, Jasminum auriculatum and Pithecellobium dulce were used for assessing the antibacterial activity against all the isolates IS 1, IS 2, IS 3, IS 4, IS 5, IS 6 and IS7 illustrated as below (Figure 3).

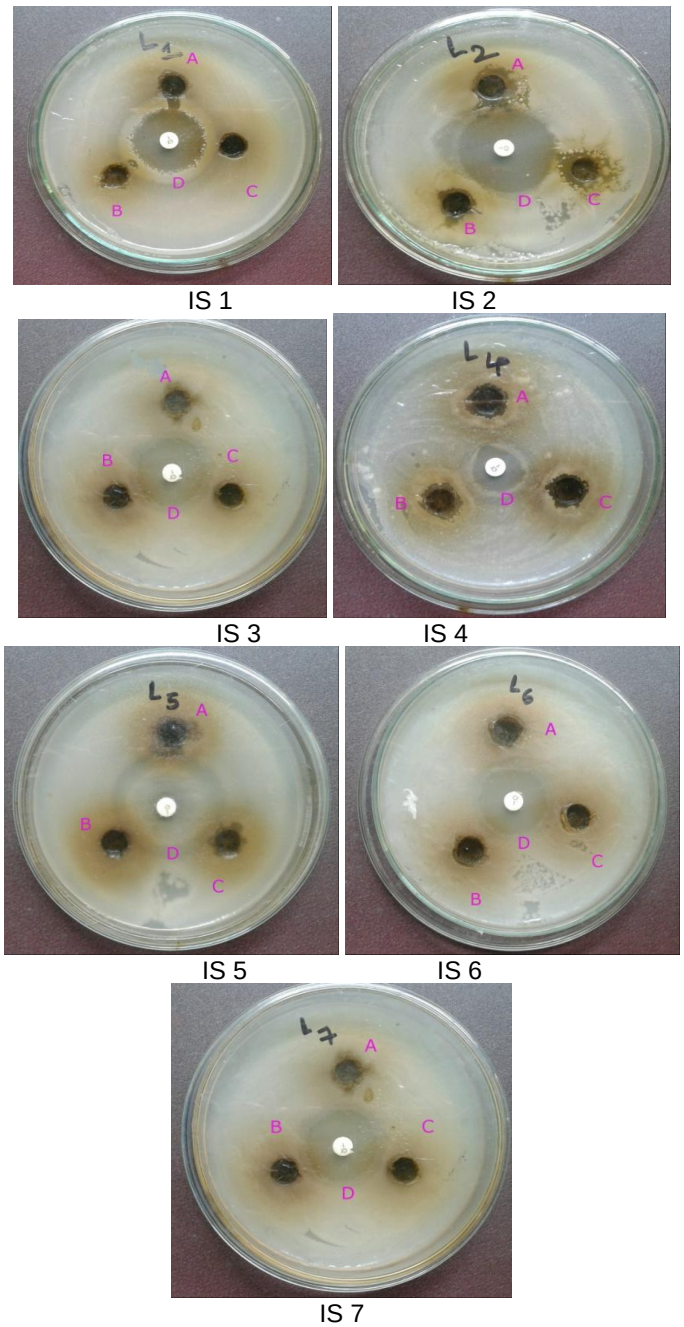

Fig 3 *Methanolic extract at a concentrations A. 0.05 g/ml B. 0.1g/ml C. 0.2g/ml D. ciprofloxacin (positive control) against Isolates*

Antibacterial activity (Zone of inhibition) of methanolic extract of Daucus Carota, Jasminum auriculatum and Pithecellobium dulce tabulated on (Table 1).

Plant extract conc(mg/ml)		Disc diffusion method (Iinhibition zone mm)						
		IS 1	IS 2	IS 3	IS 4	IS 5	IS 6	IS 7
	50	1	8	1	7	6	-	-
	100	-	6	-	6	4	-	-
	200	-	4	-	4	-	-	-
Ciprofloxacin	1mcg/ml	21	24	-	10	26	17	16

- Indicates no zone of inhibition

The result showed that the antibacterial activity of the plant extract was increased with increasing the concentration extracts. The extract showed anti bacterial activity on IS 2,IS 4, IS 7. The methanolic extract of the plant showed activity against IS 2 (8 mm, 6mm, 4 mm for 50 mg/ ml, 100 mg/ml, 200 mg/ ml), IS 4 (7mm, 6 mm, 4mm for 50 mg/ ml, 100 mg/ml, 200 mg/ ml), IS 5 (6 mm, 4. mm for 50 mg/ ml, 100 mg/ml). Amongst all the isolates IS 2 and IS 4 were showed potential antimicrobial activity.

4 CONCLUSION

Bacteria were isolated from Lap top key board surface. The antibacterial activity of Daucus Carota, Jasminum auriculatum and Pithecellobium dulce methanolic extract was assessed against Lap top key board bacteria. Agar wells were prepared and filled using the varies extracts to control the growth of bacteria. The present study revealed that IS 2 and IS 4 were showed potential antimicrobial activity. Hence it is concluded that plant extracts are the natural replacements with chemical disinfectants

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