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PHYTOCHEMICAL SCREENING AND ANTI BACTERIAL AND ANTIFUNGAL ACTIVITY OF STEM OF GARDENIA ULIGINOSA

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ABSTRACT

In the Indian system of medicine Gardenia uliginosa is a potent medicinal plant. Gardenia uliginosa were studied for their Anti-bacterial activity against Candida albicans in the present study the aquous , ethnolic, chloroform and petroleum ether extract of the.It was observed that the ethnolic extract and petroleum ether extract showed significant activity whereas aqueous extracts showed very less activity did not showed any activity against the tested fungal strain.

KEY WORDS

Gardenia uliginosa, Phytochemical, screening, anti-fungal

INTRODUCTION

In India since ancient times Medicinal plants have always been the principle source of medicine and throughout the developed countries presently they are becoming popular. In remote part of developing countries, they also play an important role in the life of tribal and rural people. Gardenia uliginosa, belong to the family Rubiaceae. Infusion of plant is used against rheumatism, cold and bronchitis. The leaves are used traditionally [Srinivasulu C and Indraneil Das. 2008].

MATERIAL AND METHODS

Collection of plant material

The stem of the selected plant was collected from the Medicinal gardens of SV University.

Extraction of Plant Material

Cold maceration method is used for the extraction of plant material

Aqueous extract

In 250 ml of water 10 gm dried powder was dissolved in a 500 mml of beaker and left for 48 hours with frequent shaking the beaker. After filtration the filtrate was collected and thoroughly concentrated.

Chloroform extract

In 250 ml of chloroform 10 gm dried powder was dissolved in a 500 mml of beaker and left for 48 hours with frequent shaking the beaker. After filtration the filtrate was collected and thoroughly concentrated.

Petroleum ether extract

In 250 ml of Petroleum ether 10 gm dried powder was dissolved in a 500 mml of beaker and left for 48 hours with frequent shaking the beaker. After filtration the filtrate was collected and thoroughly concentrated.

Ethanolic extract

In 250 ml of Ethanol 10 gm dried powder was dissolved in a 500 mml of beaker and left for 48 hours with frequent shaking the beaker. After filtration the filtrate was collected and thoroughly concentrated.

Preliminary Phytochemical screening

various phytochemical screening as per the standard procedure to reveal various active phyto constituents in are conducted after the various extracts obtained after maceration

ANTI-BACTERIAL ACTIVITY

Collection of micro-organism

From SV Medical College Fungal strain Candila was obtained, Dilutions were applied to autoclave filter paper disc using micro pipette with sterile pipette tip.

Table 1. Composition of Saburauds agar media

Ingredients	Quantity prescribed	Quantity taken
Dextrose	40g	10g
Peptone	10g	2.5g
Agar	20g	5 g
Dist water	1000 ml	250

Cultured media

The composition was mentioned in Table 1. Culture media i.e., Saburauds agar media was prepared.

Nutrient media

The nutrient media was prepared with continuous stirring in 250 ml of water2.5 gm peptone was added then 10 gm dextrose and 5 gm of Agar was dissolved, in above solution. The media was formed a clear liquid by heating to dissolve the agar. The media was sterilized by autoclaving at 15 lb pressure and 115^{0}C for 15 minutes. Then pH was adjusted to 5.4.

Dilution

prepare stock solution (1000 ug/ml) In 100 ml of distilled water dissolved 100 mg of drug. From the above solution, to prepared sub stock solution in a volumetric flask 10 ml was taken and diluted up to 100 ml with distilled water. (100ug/ml). Different concentrations are prepared from the stock solution

Application of disc

By keeping all the disc of sample, standard, control with different dilution was placing on to the incubated plate. At 37^{0}c Petri plates were incubated for 72 hours.

Zone of inhibition

The plates were inspected to identify zone of inhibition after incubation. Using the formula, the diameter of zone of inhibition of each compound and the diameter of disc of different concentration was recorded. Zone of inhibition – Diameter of sample / Standard / control - Diameter of disc [. Kokate CK2005, Mishra SH 1978].

In present investigation study Gardenia uliginosa, is chosen which is indigenous herb and the plant belongs to the family Rubiaceae which extract was found to be maximum i.e., 3.75 % w/w. followed by ethanolic extract 3.66 % w/w, petroleum ether. The scanty availability of 2.50 % w/w and chloroform extract 1.56 % w/w. This result is mentioned in Table 2. to study the Extraction, preliminary plant was subjected the various extracts of the attempt to phytochemical screening which phytochemical investigation and Anti-bacterial activity of reveal the presence of various pharmacological active plant. components. The different concentrations of extracts were tested for Anti-bacterial activity. These are prepared as coarse powder which is subjected to most effective concentration was found to be of extraction using different solvents. Extractive values of Ethanolic extract are maximum because it gave the maximum Zone of various extracts were determined and the values indicate inhibition as compared to other three extracts and is the presence of considerable number of constituents which found to be optimum as compared to standard drug Fluconazole. Using four different concentrations (20, 40, 60 & 80 ug/ml. The study on fungi (Candida) was studied, On the basis of findings, the effect produced by extract was comparable to that of fluconazole anti-viral drug. Zone of inhibition of test drug is compared to standard and ethanolic extract showed the potent Anti-bacterial activity as compared to other extract. However, with the increase in concentration the Zone of inhibition of test drug was increased. Thus, to the selected medicinal plants which claims its folk lore use in medicine. These studies provided a scientific support.

Table 2. Percentage of extract obtained

S/No.	Parameters Estimated	Percentage (w/w)	Colour	Nature
1	Aqueous Extract	3.75	Green	Gummy
2	Ethanolic Extract Light	3.66	Green Powder	Powder
3	Pet. Ether Extract	2.50	Dark green	Powder
4	Chloroform Extract	1.56	Green	Powder

Table 3. Preliminary phytochemical screening of Gardenia uliginosa

S.No	Constituents	Test	Aqueous extract	Ethanolic extract	Chloroform extract	Petroleum extract
1	Alkaloids	Mayer's test	-	-	-	-
		Dragendroff' test	+	+	-	-
		Hager's test	-	-	-	-
		Wagner's test	-	-	-	-
2	Carbohydrate	Molisch's test	+	+	-	-
		Fehling's test	-	-	-	+
3	Glycosides	Brontrager's test	+	-	-	-
		Legal's test	-	-	-	-
4	Fixed oil and fats	Spot test	+	+	-	+
		Soap formation test	+	-	-	-
5	Tannins	$FeCl_3$	-	-	-	-
		Vanillin HCl	-	-	-	-
		Alkaline reagent	-	-	-	-
6	Protein and amino acid	Million's test	-	-	-	-
		Ninhydrin test	-	-	-	+
		Biuret test	+	+	-	-
7	Flavanoids	With NaOH	+	-	-	+
		With $H2SO_4$	-	+	-	-
8	Steroids and triterpenoids	Libermann's Burchard test	-	+	-	-
		Salkowski's test	+	-	-	-
9	Mucilage and gum	With 90% alcohol	-	-	-	-
10	Waxes	With alc. KOH	-	-	-	-

Table 4. Zone of inhibition of different extract of Gardenia uliginosa

Strain	**Candida albicans**			
	20	**40**	**60**	**80**
Concentration (ug/ml)				
		Sample		
Aqueous Extract	-	-	6	7
Ethanolic Extract	-	8	12	15
Chloroform Extract	-	-	5	-
Pet. Ether Extract	-	-		10
Standard Drug (ug/ml)			16 (F)	
Control		-		

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