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Preliminary Phytochemical Screening And Antibacterial Activity Of *Ampelocissus latifolia* (Roxb.) Planch

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ABSTRACT
The screening and study of selected Indian medicinal plant *Ampelocissuslatifolia* (Roxb.) Planch.,were selected for phytochemical screening and antibacterial studies. The solvents used for the extraction of plant roots were ethanol, benzene, chloroform, acetone, petroleum ether and distilled water. The Gram-Postive and Gram-negative bacteria *Yeast candida, Aspergillusniger, Staphylococcus aureus, Eschericha coli, Salmonella typhi, Bacillus subtilis, Pseudomonas fluorescence, Klebsiellapneumoniae*and*Streptococuspyogenes*.were tested. The results obtained in the present study suggest that preliminary phytochemical analysis detected the presence of Alkaloids, Flavonoids, Terpenoids, Steroids, Cumarins, Carbohydrates and Tanins. The *Ampelocissuslatifolia* (Roxb.)Planch.couldbe used in treating diseases caused by the test organisms.
Keywords: Phytochemicals,*Ampelocissuslatifolia*(Roxb.) Planch. , Antibacterial activityand Pathogens.

INTRODUCTION

Medicinal plants have a long-standing history in many indigenous communities and continue to provide useful tools for treating various diseases.A large number of the country's rural population depends on medicinal plants for treating various illnesses. These plants played a significant role in various ancient traditional system of medication in India.Phytochemical, Antibacterial Screening and Spectroscopic Analysis of the Crude Samples of Stem Bark Extract of *Lonchocarpuscyanescens*[1]. Preliminary phytochemical and Fourier Transform Infrared Spectral analysis and Antimicrobial Studies of solvents extracts of *Urgineaindica*(Roxb.) Kunth(Liliaceae) and *Cycleapeltata*Arn. ex Wight (Menispermaceae), results were clearly revealed that the plant contained different bioactive compounds such as of Alkaloids, Anthoquinones, Coumarins, Steriods and Flavonoids compounds were rich in the extracts of *Urgineaindica*(Liliaceae) and *Cycleapeltata*(Menispermaceae) are connected with defense mechanism against many microorganisms[2].Plants are a source of large amount of drugs comprising to different groups such asantispasmodics, emetics,anti-cancer,antimicrobialsetc[3].Preliminary Phytochemical Screening and Evaluation of Anti-Inflammatory Activity of Methanolic Extract of *Barleriacristata*Linn. Roots in Experimental Animals[4].

Antimicrobial activity and phytochemicalanalysis of selected Indian folk medicinalplants.Kirby-Bauer method was followed for disc diffusion assay[5]. Preliminary studies on phytochemicals and antimicrobial activity of solvent Extracts of Eichhorniacrassipes(Mart.)Solms.They had study the fresh plant contain alkaloids, flavonoids, phenols, sterols, terpenoids, anthoquinones and protein[6]. Studies on the phytochemistry, spectroscopic characterization and antibacterial efficacy of salicorniabrachiata[7]. Preliminary phytochemical screening of different solvent extracts of stem Bark and roots of DennetiatripetalaG. Baker[8]. Seed ethanolic extract showed high content of phytochemicals, highest antimicrobial and antioxidant activity and results supported the usage of Vernoniaanthelmintica in folk and traditional medicine[9]. Phytochemical screening and antimicrobial activity of medicinal plant PergulariadaemiaFromChandrapur Forest Region[10]. Phytochemical screening , functional groups and element analysis of TylophoraPauciflorawight and arn. They had concluded that traditional use of tylophorapauciflora for human ailments and partly explained its use in herbal medicine as rich sourch of phytochemicals with the precence of tanins , phenol , saponins , steroids , flavoinoids , and terpenoid[11]. Preliminary phytochemical screening of different solvent extracts of stem Bark and roots of *Dennetiatripetala*G. Baker[12]. The most essential of these bioactive constituents of plants are alkaloids, tannins, flavonoids and phenolic compounds. Many of the indigenous medicinal plants are used as spices and food[13]. Medicinal plants are moving from fringe to main stream use with a greater number of people seeking remedies and health approach[14].

MATERIALS AND METHODS

Plant collection

The following medicinal plants were selected and collected for the study from the local area ofUttamsagar forest of Betul district. The Medicinal Plants *Ampelocissus latifolia* (Roxb.)

Planch. was collected from follow land in and around Uttamsagarforest brought into the laboratory for further processes. The collected samples were carefully stored in sterile polythene bags and used for the further study.

Sterilization of Plant Materials

The disease free roots were selected for this investigation. About 2gm dried roots were taken. Then, surface sterilized with 0.1% mercuric chloride and alcohol from few seconds. Again the materials were washed thoroughly with distilled water.

Preparation of Plant Extracts

The organic solvent extract was prepared by adding 5 gm powder of ethno veterinary medicinal plants in 250 ml of organic solvent(Absolute Alcohol, Acetone, Petrolium Ether, Benzene, chloroform and Distil Water) for 6 hrs. bySoxlhet method and filtrate was evaporated in controlled conditions of temperature of active constituents of preparations. Dried extracts were stored in labelled sterile wide mouthed screw capped bottle at 40c and used for further study.

Preliminary Phytochemical screening

Phytochemical screening were performed to assess the qualitative chemical composition of different crude extracts using commonly employed precipitation and coloration reactions ,the methods of Harbone[15], Trease and Evans[16] were used to identify the major secondary metabolites like Alkaloids, Flavonoids, Saponins, Carbohydrate, Protein, Phenols, Steroids, Tannins, Glycosides, Terpenoids, Phlobatannins, Coumarins, Emodins, Anthoquinones, Anthocyanins, Leucoanthocyanins in the extracts.

Antimicrobial screening

All solvent extracts were screened *in vitro* growh inhibitory activity against different microbes *E. coli ,Pseudomonasfluroscene ,Salmonella typhi Bacillus subtilis ,Klebsiellapneumoniae ,Staphylococcus aureus ,Streptococcus*Yeast candida ,*Aspergillusniger.* using disc-diffusion method.The bacteria rejuvenated in Nutrient broth (Hi-media – laboratories, Mumbai, India) at 37^{0}c for 18 hrs. and then stored at 40^{0}c on Nutrient agar subcultures were prepared from the stock for bioassay.

Table 1:-Phytochemical activity of root extracts of *Ampelocissuslatifolia(Roxb.)* Planch.

Plant part	Test / Reagents Used	Ethanol extract E	Benzene extract B	Chloroform Extract C	Acetone extract A	Petroleum Ether P	Distil Water extract W
Root	Alkaloids (Hager's Test)	+	-	-	+	-	-
	Glycosides (Libermann's Test)	-	-	-	-	-	-
	Phenols	-	-	-	-	-	-
	Saponins (Foam Test)	-	-	-	-	-	-
	Tannis (Braymer's Test)	-	-	-	+	-	-
	Flavonoids	+	-	-	+	-	-
	Terpenoids	+	-	-	+	-	-
	Steroids (Salkowski Test)	+	-	-	+	+	-
	Phobatannins (Precipitate Test)	-	-	-	-	-	-
	Coumarins	+	-	-	+	-	-
	Proteins (Xanthoproteic Test)	+	+	+	+	+	+
	Emodins	-	-	-	-	-	-
	Carbohydrates (Molisch Test)	+	+	+	+	+	+

Present -- **+ve** Absent -- **-ve**

Table 2 :- Antimicrobial activity of root extracts of *Ampelocissuslatifolia* by Disc Diffusion Method (Zone of Inhibition in mm at 100 µg/disc)

S.No	Microorganism	Ethanol	Benzene	Chloroform	Acetone	Petroleum ether	Distil water
1	**YC**	0	0	0	0	0	0
2	**AN**	0	0	0	0	0	0
3	**SA**	17	0	0	16	0	0
4	**EC**	9	0	0	8	0	0
5	**ST**	18	0	0	16	0	0
6	**BS**	0	0	0	0	0	0
7	**PF**	0	0	0	0	0	0
8	**KP**	0	0	0	0	0	0
9	**SP**	0	0	0	0	0	0

*Data represented in mean of three replicates.
YC = *Yeast candida*, **AN** = *Aspergillusniger*, **SA** = *Staphylococcus aureus*,
EC = *Escherichia coli*, **ST** = *Salmonella typhi*, **BS** = *Bacillus subtilis*,
PF = *Pseudomonas fluorescence*, **KP** = *Klebsiellapneumoniae*,
SP = *Streptococuspyogenes*

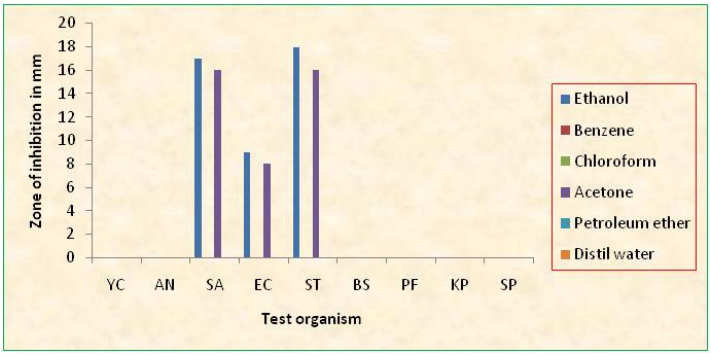

Figure 1:- Analysis of antimicrobial sensitivity of root extracts of *Ampelocissus latifolia* (Roxb.)

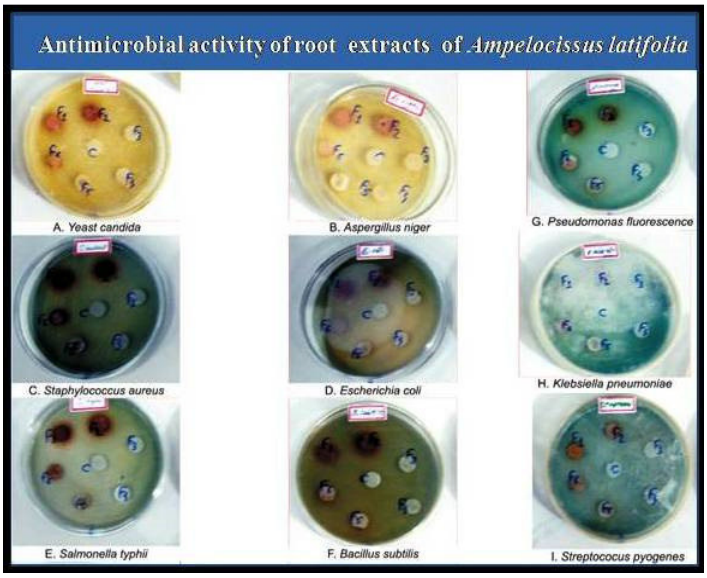

Figure. 2 :- Antimicrobial activity of root extracts of *Ampelocissuslatifolia* (Roxb.) Planch.

Phytochemical screening:-

From the above table no. 1 it is clear that,

Alkaloids

It was found that concentration of alkaloids have been extracted in ethanol and acetone extract. This is evident from the positive test with Hager's reagent. Benzene, Chloroform, Petroleum ether and Distil water have shown negetive test.

Glycosides

All extracts have shown negetive test for Glycosides with Libermann's reagent.

Phenols

All extracts have shown negative test for Phenols.

Saponins

All extracts have shown negetive test for Saponins.

Tannins

It is found that concentration of tannins have been extracted in Acetone extract.This is evident from the positive test with Braymer's reagent. Ethanol, Benzene, Chloroform, Petroleum ether and Distil water have shown negetive test for tannins.

Flavonoids

It is found that concentration of flavonoids have been extracted in Ethanol and Acetone extract. This is evident from the positive test. Benzene, Chloroform, Petroleumether and Distil water have shown negetive test for flavonoid.

Terpenoids

It is found that concentration of terpenoids have been extracted in Ethanol and Acetone extract. This is evident from the positive test. Benzene, Chloroform, Petroleum ether and Distil water have shown negetive test for terpenoids.

Steroids

It is found that concentrations of Steroids have been extracted in Ethanol, Acetone and Petroleum ether extract. This is evident from the positive test with Salkowski reagent. Benzene, Chloroform and Distil water have shown negetive test for Steroids.

Phlobatannins

All extracts have shown negative test for Phlobatannins .

Coumarins

It is found that concentration ofCoumarins have been extracted in Ethanol and Acetone extract. This is evident from the positive test. Benzene, Chloroform, Petroleum ether and Distil water extracts have shown negetive test forCoumarins.

Proteins

All extracts have shown positive test for Proteins with Xanthoproteic reagent.

Emodins

All extracts have shown negetive test for Emodins.

Carbohydrates

All extracts have shown positive test for Carbohydrate with Molisch reagent

Antimicrobial activity :-

Ethanol extracts showed very promising results against three pathogens like *Staphylococcus aureus , Escherichia coli* and *Salmonella typhi.* The maximum zone of inhibition of 18 mm was observed in ethanol extract against pathogen *Salmonellatyphi* . Ethanol extracts was found non reactive to other test organisms. Acetone extracts also showed positive results against *Staphylococcus aureus , Escherichia coli* and *Salmonella typhi* . The maximum zone of inhibition of 16 mm was found in acetone extracts against pathogen *Staphylococcus aureus*and *Salmonella typhi.* The acetone extracts was found non reactive to other test organisms. Benzene, chloroform, Petroleum ether and aqueous extracts showed no any response to the all test organisms and reactions were nullified.

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