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Comparative Antimicrobial Study Of Polar And Non Polar Extracts Of *Ehretia Laevis Roxb.*(Khandu Chakka) Plant

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Introduction

In Wardha district of Maharashtra India, Khandu Chakka Plant is prominently used for wound healing, joint pain and minor fractures by local peoples with promising results. . Its folklore claim of wound healing property has been confirmed on scientific basis. [(1)] *Ehretia laevis Roxb.* is Commonly known as: ovate-leaved ivory wood, Gujarati: Vadhavaradi , Hindi: bhairi, chamror, Konkani:kalo gamdo, Malayalam: Caranti, Marathi:, Datrangi (As it colours teeth in red) Ajaanvruksha (Sant Dnyaneshwar from Alandi Maharashtra India took Samadhi near the base of this tree and considered as very spiritual plant).

In Ayurvedic literature, uses of this plant are for Prameha and Vishagna. This plant has many medicinally useful chemicals and has great ethno botanical properties [(2).]
Ehretia is a genus of flowering plants in the borage family, Boraginaceae. It contains about 50 species. The generic name honors German botanical illustrator Georg Dionysius Ehret (1708–1770

Keywords:- *Khandu Chakka, Ehretia Laevis Roxb., Wound Healing, Antimicrobial activity*

Aim and objective:-

- To study the comparative antimicrobial activity of Ethanolic and Chloroform extracts of *Ehretia Laevis Roxb.*(Khandu Chakka) plant on gram positive and gram negative organism

Methodology

The literatures were studied regarding the references of *Ehretia laevis Roxb.* plant. Later references were scrutinized from internet, local peoples, and research papers folklore practitioners. Plant is indentified by Taxonomist FRLT Bangalore. Fresh leaves of plant were collected from Dhaga forest of Wardha district. After confirmation of sample, Leaves were washed with distilled water and then cleaned by absolute alcohol and then rinsed by distilled water three times.

Extraction from Ehretia Laevis plant's leaves in Ethanolic and Chloroform solutions is done.

1. Ethanolic extraction: - Leaves were washed with distilled water and cleaned by absolute alcohol and rinsed by distilled water three times. The ethanolic extract is done by using soxhlet extractor. Powdered dried leaves (50 gm) are extracted in 250 ml of solvent.
2. Chloroform extraction:- Leaves were washed with distilled water and cleaned by absolute alcohol and rinsed by distilled water three times. The chloroform extract will is done by using soxhlet extractor. Powdered dried leaves (50 gm) is extracted in 250 ml of solvent

Freshly derived both polar and non polar extracts were refrigerated to maintained the chemical integrity of derived E. Leaves plant leaves.

1. The anti microbial study was performed on Staphylococcus Aureus gram positive and Pseudomonas Aeruginosa gram negative species. The anti microbial potency of both Polar, Non polar and crude extracts were evaluated to understand anti microbial activities.
2. Microbial strain: Antimicrobial activity for gram positive organism, Staphylococcus aureus and Pseudomonas Aeruginosa gram negative species responsible for wound infection.
3. Culture media: - Nutrient agar medium for bacterial strains used for the antimicrobial activity. Amoxicillin drug is used as a standard for antimicrobial activity.

Method to asses antimicrobial activity: -

Antibacterial Activity by Agar well diffusion method: Each Petri dish containing nutrient agar medium was inoculated with one bacterial culture. The bore size was 10 mm. All plates were kept in the refrigerator for 30 minutes to allow the diffusion of sample to the surrounding agar medium. The petri dishes were incubated at 37^0 C for 24 hrs. The Ethanol and Chloroform extracts of plant were tested

at different concentration. Amoxicillin was used as standard. The plates were incubated at room temperature for 24 hrs and zones of inhibition were measured. Diameter of the zone of inhibition was measured. The diameter obtained for the test samples were compared with standard amoxicillin. Size of zones (in mm) will be observed for different concentration (in µg/ml) i. e. 1000 µg/ml, 500 µg/ml, 250 µg/ml, 100 µg/ml, 50 µg/ml, 10 µg/ml.

Place of study

1. Institute of Pharmaceutical education and research Wardha

Study type:- Laboratory Analytical study.

Results And Observation:-

Table No. 1: Zone of inhibition shown by standard and Ethanolic extract.

Sr. No	Cons. in µg	Zone of Inhibition in mm			
		Amoxicillin		Ethanolic Extract	
		S. aureus	Pseudomonas aeruginosa	S. aureus	Pseudomonas aeruginosa
1	5	12	22	-	-
2	10	16	24	-	-
3	50	20	28	12	-
4	100	24	30	14	14
5	250	28	32	15	15
6	500	32	35	18	18
7	1000	36	37	20	22

1. Ethanolic Extract on Pseudomonas aeruginosa :-

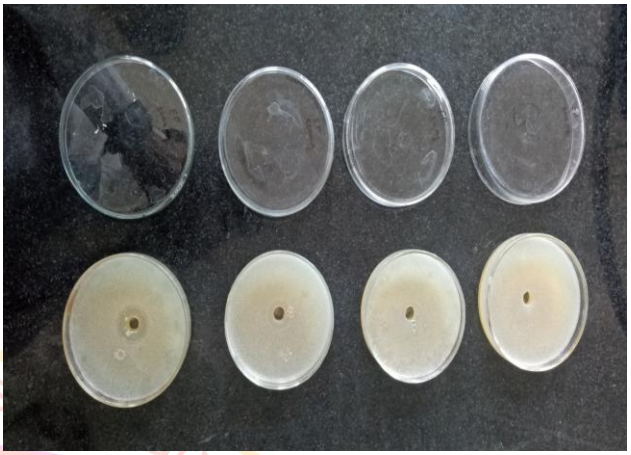

Table No. 1: Zone of inhibition shown by standard and Chloroform extract.

Sr. No	Cons. in µg	Zone of Inhibition in mm			
		Amoxicillin		Chloroform Extract	
		S. aureus	Pseudomonas aeruginosa	S. aureus	Pseudomonas aeruginosa
1	5	12	22	-	-
2	10	16	24	-	-
3	50	20	28	-	-
4	100	24	30	-	-
5	250	28	32	-	-
6	500	32	35	-	-
7	1000	36	37	-	-

1. Chloroform Extract on S. aureus

2. Chloroform Extract on Pseudomonas aeruginosa

Conclusion:-

Standard Amoxicilline exhibited zone of inhibition at 5 µg /ml. Ethanolic extract did not show antimicrobial activity at 5 µg /ml and 10 µg /ml against both microorganism. It was found to be effective against S. aureus at 100 µg /ml and ineffective against Pseudomonas aeruginosa at the same concentration. Chloroform extract did not show antimicrobial activity up to 1000 µg /ml against both the organism.

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