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Comparative study of antimicrobial effect of brihati *[solanum indicum linn]* root and fruit- an in vitro study.

Sampada Dhongde*[1], Shashidhar Naik[2]

1. Post Graduate Scholar,
2. Professor & Head of Department of Dravyaguna,

BLDEA'S AVS Ayurveda Mahavidyalaya Hospital & Research Centre, Vijayapur,Karnataka, INDIA.

***Corresponding author:** sampadabhutakar@gmail.com*

ABSTRACT :-

Brihati is a well known drug used in various diseases like dyspnoea, odema, wound infection etc[1] .Both root and fruit are useful part of plant according to brihatrayi[2-11].The study is undertaken for antimicrobial activity of root and fruit against Staphylococcus aureus and Staphylococcus Caprae. If antimicrobial effect of root and fruit is similar than it is our duty to save the plant. No need to pluck the whole plant or root and use only fruit extracts for antimicrobial activity.However the literature mining reveled that brihati have not been studied for antimicrobial activities, hence the present study is first systematic attempt to analyze the antimicrobial potential of Brihati on selected strains.

Keywords: *Brihati*, Staphylococcus aureus, Staphylococcus Caprae, antimicrobial effect

Aims and Objectives :-

Short term objectives:

1. Collection and pharmacognastical evaluation of fruit and root of Brihati (Solanum indicum Linn).
2. To review the relevant ayurvedic and modern literature concerned with fruit and root of Brihati (Solanum indicum Linn).

Long term objectives:

1. To perform physico-chemical analysis of the fruit and root of Brihati (Solanum indicum Linn).
2. In vitro evaluation of antimicrobial activity of Brihati (Solanum indicum Linn) root and fruit with aqueous extract in selected organisms.
3. 3.Qualitative analysis by instrumental method-TLC,HPTLC.
4. selected organisms are Staphylococcus aureus and Staphylococcus caprae[12-13].

Methods :- Collected samples of Brihati (*SolanumindicumLinn*) root and fruit will be subjected to following procedure.

1. Identification, collection and Authentication of Brihati (*Solanumindicum Linn*)root and fruit.
2. Pharmacognostic and Phytochemical study of Brihati (*SolanumindicumLinn*) root and fruit.
3. Aqueous extraction of Brihati (*Solanumindicum Linn.*) root and fruit
4. Qualitative analysis by instrumental method – TLC , HPTLC
5. In vitro antimicrobial activity will be done for the prepared extracts of the samples by Well diffusion method..

Results: - The Phyto- chemical results of this study showed that the brihati abundantly
rich in Alkaloids, steroids, Flavinoids, proteins, Saponins and Cartenoids.

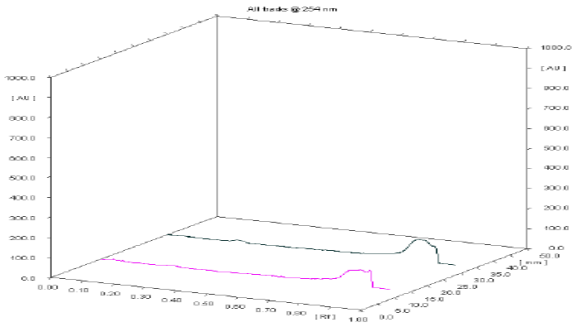
Physico- Chemical Result TABLE -11

Sr.no.	TESTS	FRUIT VALUE	ROOT VALUE
1	Est. of foreign matter	0	0
2	Total moister content	6.4	5.55
3	Total ash value	6.4	5.55
4	Acid insoluble ash	0.05	0.1
5	Water insoluble ash	5.55	4.9

TABLE -12

	TLC of Solanum indicum linn	
Sr.no	Sample name	Rf value
1	SI-F	0.55
2	SI-R	0.52

HPTLC GRAPHS



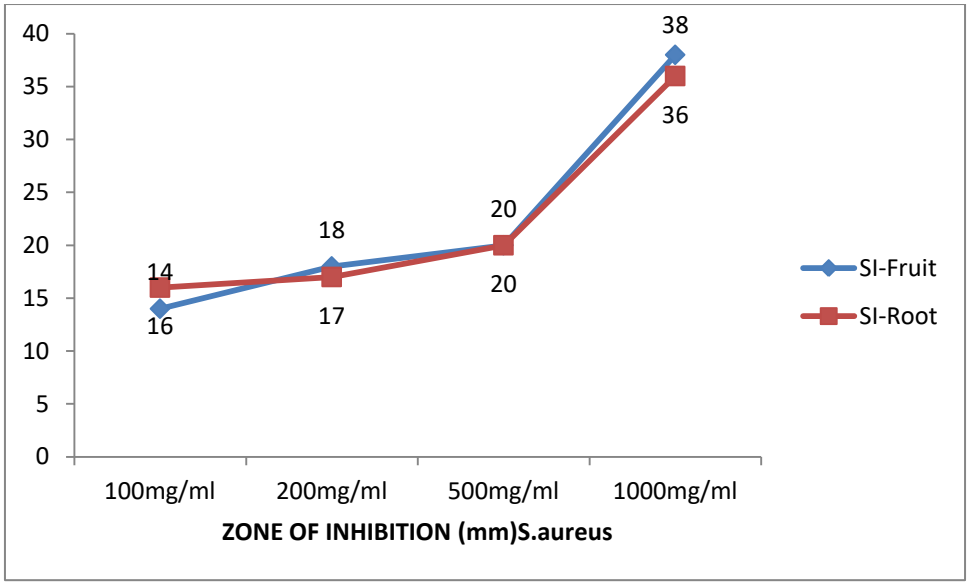
SAMPLE ANALYSIS TABLE NO 13

Sr.no	Sample name	concentration	Zone of inhibition(mm)S.aureus	Zone of inhibition(mm)S.caprae
1	SI-F	100mg/ml	14	14
2	SI-F	200mg/ml	18	16
3	SI-F	500mg/ml	20	21
4	SI-F	1000mg/ml	38	36
5	SI-R	100mg/ml	16	14
6	SI-R	200mg/ml	17	16
7	SI-R	500mg/ml	20	18
8	SI-R	1000mg/ml	36	32
9	Control drug	-	0	0
10	Ciprofloxacin	1mg/ml	42	39

Statistically there was no difference found but when the specific zone of inhibition is observed the SI-F shows significance

Table: Comparison of ZONE OF INHIBITION (mm)S.aureus between SI-F and SI-R

Sample name	Concentration	SI-Fruit	SI-Root	Changes in %	Z test	P value	Remark
Sample I	100mg/ml	14	16	12.5%	Z=0.3961	P=0.6892	NS
Sample 2	200mg/ml	18	17	5.5%	Z=0.1769	P=0.8572	NS
Sample 3	500mg/ml	20	20	0%	Z=0.000	P=1.00	NS
Sample 4	1000mg/ml	38	36	5.3%	Z=0.2369	P=0.8103	NS
NS-Not significant							



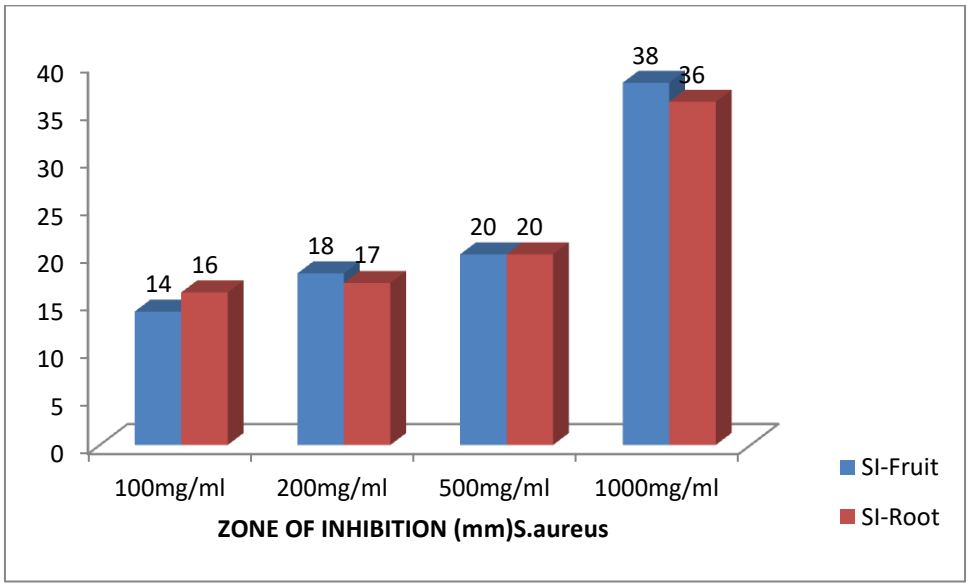
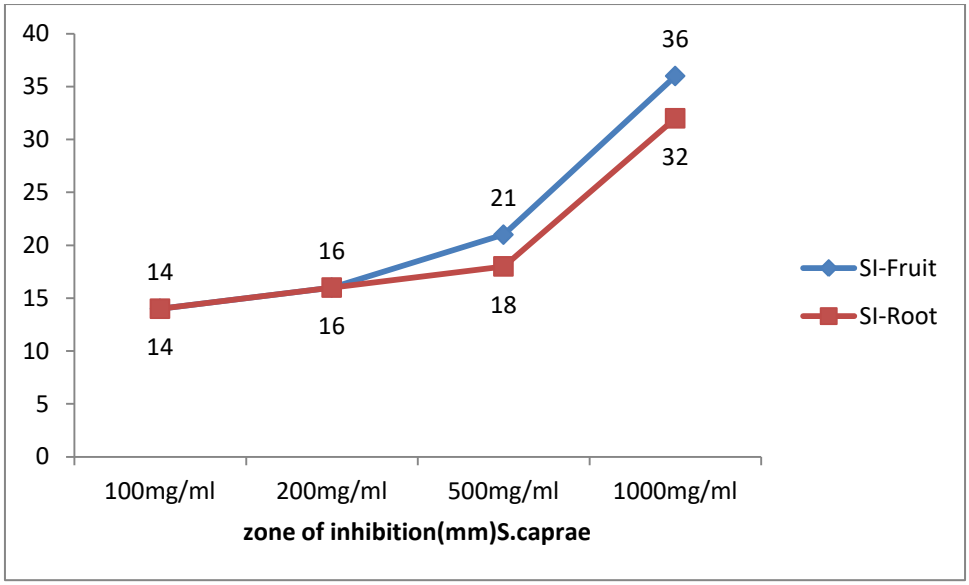
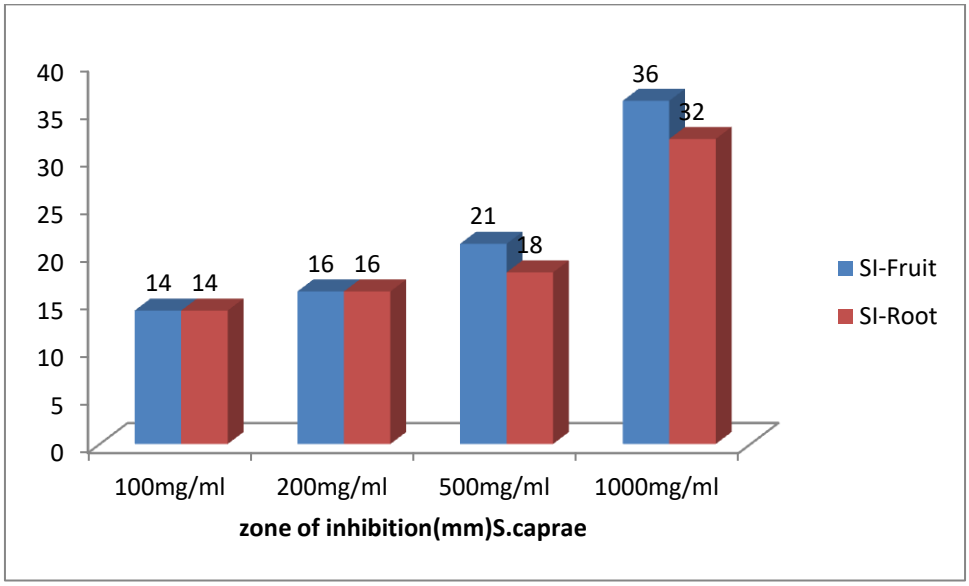


Table: Comparison of zone of inhibition(mm)S.caprae **between SI-F and SI-R**

Sample name	Concentration	SI-Fruit	SI-Root	**Changes in %**	Z test	P value	Remark
Sample I	100mg/ml	14	14	0%	Z=0.00	P=1.00	NS
Sample 2	200mg/ml	16	16	0%	Z=0.00	P=1.00	NS
Sample 3	500mg/ml	21	18	14%	Z=0.49	P=0.6241	NS
Sample 4	1000mg/ml	36	32	11.1%	Z=0.4851	P=0.6241	NS
NS-Not significant							





CONCLUSION :-

Medicinal value of Brihati ranges varying by its different parts. Its root and fruit are

main useful parts. Various krimis are enumerated in classics, and further study can be done on antibacterial, antihelmentic etc.

The antimicrobial effect of Brihati root and Brihati fruit are similar, hence fruits can be used for therapeutic purpose which indirectly helps for conservation of medicinal

plants.

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