

**COMPARATIVE ANTIMICROBIAL ACTIVITY OF SHODHITA AND SATWAPATITA
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ABSTRACT

Shilajatu is one of the rasadravyamentioned in the classical texts. Shilajatu is obtained from the mountain in the form of exudate which comes out in summer season. The reference of Shilajatu in Charaka Samhitais found that "metals like gold and others are present in the rocks which receive the sun rays and secrete the exudates which is known as shilajatu. And in susrut samhita it is mentioned that in the summer season the rocks or Himalayas get heat up and release a gum like substance which is known as shilajatu. Now a days a number of antimicrobial agent are well known to science but Unfortunately, even with the presence of these agent, still most of physician are unable to treat infectious disease properly. In the treatment of these infection some of physician may face problem like- development of resistance, adverse effect andpatient affordability. With the above discussion, it is clear that the need for finding safe, cost effective drug is always welcome, which may be an ideal replacement to these antimicrobial agent. Shilajatu may be the solution to this problem. Shodhita shilajatu, satwapatita shilajatu, Benzathine penicillin (antibacterial), Flucanazole (antifungal), distilled water formed the drug materials and 4 strains of bacteria & 2 strains of fungi, agar media, chemicals & glass wears formed the materials for study. Cup plate method was followed.

KEYWORDS: Shodhita shilajaju, Satwapatita Shilajaju, Benzathine penicillin (antibacterial), Flucanazole antimicrobial.**INTRODUCTION**

Since a long time a number of antimicrobial agent werediscovered which were effective in the manifestation ofvarious infectious diseases. Amongst most of infections, microbes are most notorious in attacking humans.^[1]

Now a days a number of antimicrobial agent are well known to science but Unfortunately, even with the presence of these agent, still most of physician are unable to treat these infections properly. In the treatment of theseinfection some of physician may face problem like- development of resistance, adverse effect andpatient affordability.^[2] With the above discussion, it is clear that the need for finding safe, cost effective drug is always welcome, which may be an ideal replacement to these antimicrobial agent. shilajatu may be the solution to this problem because of its krimigna and kusthagna property which is coated as''

“**Nunmsjawarpandushofsamanammehagnimandyapahm, Gulmaplihavenashnamjatharhritashulghnmamapaham, Sarwtavaggadanashnamkimparmdehe chalohehitam**”.^[3]

In ayurvedakrimi may be correlated to various types of micro organism which can be dfferent kind of bacteria and fungi. Because of various side effect of these modern antimicrobial drugs, we need a safe replacement without side effect.

MATERIALS AND METHODS^[4,5]**Materials**

Drugs: Shodhita shilajatu, marita shilajatu, Benzathine penicillin, Flucanazole, Distilled water

Micro organisms:

Bacteria: Escheria coli, Staphylococcus Aureus, Pseudomonas aeruginosa, Klebsiella species.
Fungi : Candida albicans, Aspergillus niger

Method

Pharmaceutical study

Shodhana of Shilajatu^[6]: RRS 2/110-112
satwapatna of shilajatu^[7]: RRS 2/113

Anti microbial activity^[8,9]

Anti microbial activity was carried out according to CUP PLATE Method and it was conducted at BLDEA's College of Pharmacy Vijayapur.

OBSERVATION AND RESULTS

Table No. 1: Shows zone of inhibition (in mm) of 1%, 2%, & 5%, solutions of shodita & satwapatita shilajatu in comparison with standard & Control drugs.

Soln of drugs		Zone of inhibition in mm on test organism					
		Bacterial organism				Fungal organism	
		E.C	S.A	P.A	K.S	C.A	A.N
Shodhitashilajatu	1%	20 mm	16 mm	16 mm	15 mm	15 mm	14 mm
	2%	24 mm	20 mm	20 mm	16 mm	16 mm	14 mm
	5%	28 mm	26 mm	24 mm	24 mm	26 mm	18 mm
Satwapatitashilajatu	1%	18 mm	16 mm	16 mm	16 mm	14 mm	14 mm
	2%	22 mm	22 mm	20 mm	18 mm	18 mm	16 mm
	5%	26 mm	24 mm	22 mm	23 mm	20 mm	20 mm
Standard drug	B.P	28 mm	24 mm	26 mm	28 mm		
	Fcn					24 mm	24 mm
Control		0	0	0	0	0	0

E.C: Escheria coli **S.A:** Staphylococcus Aureus **P.A:** Staphylococcus Aureus **K.S:** Klebsiella species. **C.A:** Candida albicans **A.N:** Aspergillus niger **BP: Fcn:**

DISCUSSION

1%, 2% & 5% solutions of shodita & satwapatita shilajatu were tested against 6 strains of micro organisms for antimicrobial activity. 0.5 ml of Shodhita shilajatu 1% (5000µg), 2% (10000µg) & 5% (25000µg / 0.5 ml) and satwapatita shilajatu 1% (5000µg), 2% (10000µg) & 5% (25000µg/ 0.5 ml) shilajatu were used as the test drug solutions for antimicrobial activity.

Benzathine penicillin was used as the standard drug for antibacterial activity(1250 µg/0.5ml) and Flucanazole was used as the standard drug for antifungal activity (500 µg/0.5ml).

0.5ml of test drug solutions i.e. shodita & satwapatita shilajatu, 1 control drug solution (distill water) and 2 standard drug solutions (Benzathine Penicillin & Flucanazole) were injected into the bore, having the maximum capacity 0.5ml.

On bacteria & fungi 0.5ml of the 1%, 2% & 5% test solution of shodita & satwapatita shilajatu were shown zone of inhibition against the micro organisms, i.e Escheria coli, Staphylococcus Aureus, Pseudomonas

Interpretation of Results

Results were interpreted by measuring the zone of inhibition shown by samples on test organisms.

- Sensitive (S) Zone – Diameter wider than 8mm.
- Intermediate (I) Zone – Diameter between 6mm to 8mm.
- Resistant (R) Zone – No zone of inhibition or diameter less than 6mm

Aeruginosa and Klebsiella species and fungi, i.e, Candida albicans & Aspergillus niger.

On bacteria, 0.5ml solution of Benzathine penicillin shown the zone of inhibition against Escheria coli, Staphylococcus Aureus, Pseudomonas Aeruginosa and Klebsiella species. On fungi 0.5ml solution of Flucanazole shown the zone of inhibition against Candida albicans and Aspergillus niger. On bacteria & fungi 0.5ml of control drug (distilled water) has not shown any zone of inhibition against any of micro organisms, i.e Escheria coli, Staphylococcus Aureus, Pseudomonas Aeruginosa, Klebsiella species, Candida albicans & Aspergillusniger.

CONCLUSION

Different % of solutions (1%, 2% & 5%) ofshodita and satwapatita shilajatu were subjected for antibacterial and antifungal activity with standard drugs Benzathine pencillin (antibacterial) and Flucanazole (antifungal). Shodita & satwapatita shilajatu have demonstrated significant antibacterial and antifungal activity than Benzathine Penicillin (standard antibacterial drug), Flucanazole (standard antifungal drug). 5% Shodhita shilajatu has demonstrated significant result than satwapatita shilajatu towards all micro organism except asparagus niger. Thus these research studies on shilajatu have provided scientific base for krimigna and kushthagna property of Shodhita shilajatu mentioned in classical texts.

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