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Anti Bacterial Activity of Viparita Malla Tail

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ABSTRACT

Background: The study was carried out with an objective to investigate the antibacterial activity of Viparita malla Tail. The aim of the study is to assess the antibacterial activity & determine the zone of inhibition of Viparita malla Tail on a bacterial strain.

Methodology: Preparation of Viparita malla tail was performed as described in Vangasena Samhita 79/59-60. Antibacterial activity was seen using Agar Cup Diffusion Method and Minimum Inhibitory Concentration(MIC) was determined using Resazurin assay.

Result: Results showed that Viparita malla Tail exhibited a significant activity against clinically relevant bacteria

Conclusion: Viparita malla Tail may be useful in the clinical management of bacterial infections, justifying future clinical trials to validate their use in therapeutics.

Keywords – Viparita, Viparita Malla, Viparita Malla Taila, Malla Taila, Antibacterial Activity.

INTRODUCTION

Every entity found in nature is composed of Panchamahabootas and the permutation and combination of this, leads to the formation of every other article we see today. Medicinal plants are no exception to this law. Hence every disease condition occurring in man, is a result of derangement of these Panchamahabootas and an appropriate, well planned drug which can undo the Samprapti Ghataka, would be the ideal medicament for that individual.

The Chikitsa Chatushpada enlists Dravya right next to the Bhishak, which highlights the superior status of Oushadhi in the four pillars of treatment. An ideal physician is one, who has complete knowledge of all drugs and is able to choose the most suitable drug for a given condition, after analysing the Dosha, Desha , Kala, Bala of the patient.

As viparita malla taila is indicated in vrana as well as researches conducted showing its effect in diabetic ulcers, it showed to have ropana effect. As well as ropana effect, it is used widely in many infected wounds as well as wounds with a high amount of pus and slough formation. Due to this we have studied the antibacterial activity of this viparita malla taila.

Materials and Methods

Vipareeta Malla Taila:[1]

Ingredients: Vatsanabha, Langali, Kushta, Nirgundi, Chitraka, Lashuna, Sharapunkha, Hingu and Sarshapa Taila

Dravya	Rasa	Guna	Veerya	Vipaka	Karma	Chemical constituent
Vatsanabha	Madhura	Laghu, Rooksha	Ushna	Madhura	Kapha-Vata Hara Jwaragna	Aconitine,aconine, pseudo aconite
Langali	Katu, Tikta	Laghu, Rooksha	Ushna	Katu	KaphaVata Hara, Garbhashaya Sancochak	
Kushta	Tikta,Katu Madhura	Laghu, Rooksha	Ushna	Katu	Kapha Vata Hara, Kasa Hara	Sassurine, inulin, tannin
Nirgundi	Katu, Tikta	Laghu, Rooksha,	Ushna	Katu	Kapha-Vata Hara, Vedana Sthapana,	Phenol,betasitosterol, camphene
Chitraka	Katu	Laghu, RookshaTeekshna	Ushna	Katu	Kapha-Vata Shamaka, Dipana Pachana	Chitranone, plumbagin, biplumbagin
Lashuna	Katu, Madhura	Guru, Snigdha	Ushna	Katu	Kapha-Vata Hara	Alliin, beta sitosterol, alkaloids
Sharapunkha	Katu, Tikta	Laghu, RookshaTeekshna	Ushna	Katu	VataKapha Hara, Plihagna	Tephrosin, purpurin, kangone
Hingu	Katu	Laghu, Sookshma Teekshna	Ushna	Katu	Kapha-Vata Hara, Sanjnasthapana	Ferocolicin, umbelliferone, foetidin
Sarshapa Taila	Katu Tikta	Laghu , Snigdha	Ushna	Katu	Kapha Vata Hara Kandugna, Krimigna	

METHOD OF PREPARATION OF VIPAREETA MALLATAILA

Vipareeta Malla Taila contains 8 ingredients namely Vatsanabha, Langali, Chitraka, Lasuna, Hingu, Nirgundi, Sarapunkha, Kushta out of which, the first 2 will have to undergo Shodhana as explained in Classics.

After that all the drugs are taken in equal quantity which are then washed and dried and are then coarsely powdered. Sarshapa Taila is then taken in a vessel and is heated on a mild flame. After the foam has formed and cleared, the powdered Churna is made into Kalka by adding sufficient water and gently introduced into the Taila. Gradually water is introduced and Taila Paka is carried out until Paka Lakshanas appear. The Kalka, Sneha and Drava are in the ratio 1:4:16 and procedure is stopped at Khara Paaka

PACKAGING: Once the oil has cooled by itself, it is collected in an airtight plastic container of 100ml each and is ready for use in this study.

Antibacterial Activity[3,4,5,6,7,8,9]

Agar- Well Diffusion Method

Principle

The antimicrobials present in the plant extract are allowed to diffuse out into the medium and interact in a plate freshly seeded with the test organisms. The resulting zones of inhibition will be uniformly circular as there will be a confluent lawn of growth. The diameter of zone of inhibition can be measured in millimeters.

Growth Method

The growth method is performed as follows

1. At least three to five well-isolated colonies of the same morphological type are selected from an agar plate culture. The top of each colony is touched with a loop, and the growth is transferred into a tube containing 4 to 5 ml of a nutrient broth. The broth culture is incubated at 37°C until it achieves or exceeds the turbidity of the 0.5 McFarland standard (usually 2 to 6 hours)
2. The turbidity of the actively growing broth culture is adjusted with sterile saline or broth to obtain a turbidity optically comparable to that of the 0.5 McFarland standard. To perform this step properly, either a photometric device can be used or, if done visually, adequate light is needed to visually compare the inoculum tube and the 0.5 McFarland standard against a card with a white background and contrasting black lines.

Note: All the glassware's were priory autoclaved so as to ensure their sterility before use.

Procedure –

1. The antimicrobial evaluation for the samples was performed *in vitro* by agar well diffusion method.
2. Take a loopful culture using sterile nichrome loop, and innoculate it in MH broth.
3. Keep it for incubation for 18-24 hours.
4. Next day reinnoculate the culture in MH broth and keep it for incubation to get the turbidity equivalent to 0.5 McFarland standard
5. To 30 ml of Mueller-Hinton agar, add 0.3ml (10^6 CFU) of culture (0.5 McFarland Standard) and mix it well.
6. Pour the medium onto the petri plate and keep it for cooling.
7. a sterilized standard cork borer of 8 mm diameter was used to cut uniform wells on the surface of the MH agar plates. 4 wells on each plate of MH agar were created
8. 100µl of each test sample and standard sample was introduced in the well chloramphenicol was used as positive control.
9. The agar plates were incubated aerobically at 37^oC.
10. After 24hrs, the zone of inhibition was measured to the nearest centimeter (cm).

Results of anti-bacterial activity evaluation

	E. coli	**S. aureus**	**P. aeuginosa**	**B.subtilis**	**Klebsiella pneumoniae**
Chl (+ ve)	30 mm	26 mm	30 mm	28 mm	29 mm
Negative control	30mm	26mm	30mm	28mm	29mm
VMT	30mm	28mm	34mm	28mm	29mm

Discussion

This shows that Viparita Malla Tail shows significant activity on P. aeuginosa and S. aureus which are also most common infections in diabetic foot. Hence this study proves that viparita malla taila shows significant antibacterial activity.

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Photos Vatsanabh Shodhan



Taila Formation



Positive Results on S.aureus and P.aerogenosa