

Comparative Study of Antimicrobial Activity of 2 Different Formulation of Kampillaka (Mallotus Philippensis) i.e.**Kampillaka Oil and Kampillaka Malhara**

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Abstract

Ayurveda means “ The Science of Life” Ayurvedic knowledge originated in India more than 5000 years ago and is often called “Mother of all healing ”.Rasashastra, the ancient alchemical science, a branch of Ayurveda originated with the twin aim of attaining Deha Siddhi and Loha Siddhi.Classified in Maharasa,Uparasa, sadharana rasa -Dhatu (Metals).Ratna,Uparatna and Sudha Vargas for the preparation of medicines from the metals and minerals different procedure like shodhana, marana Jaran,Murchana metioned in Rasashastra.There are eight sadharana rasa (group of minerals) mentioned in Rasa-Shastra. Kampillak a drug of herbal origin has categorized as one among them. It is ‘Phalaraja’(Glands and hair of the fruits) obtained from the plant Mallotus phillippinensis muell. Although it is a herbal drug because its usefulness in ayurvedic mercurial preparation (rasasiddhi) it is included under sadharana rasa.It is observed that the drug is used in 44 formulation indicated in Krimirog(worm infection),Twacha rog(skin disease),Shula,Shleshmodara,Premeha etc. Useful part of the plant is Phalaraja and should be administered internally after passing through shodhan (purification) process.The branch Bhaisajya Kalpana plays a key role in manufacturing field by providing rational basis for proper selection utilization and processing of the drug.It bridges the gap between basic medical science and clinical medicine. An anti microbial is an agent that kills micro organism or inhibits their growth. The use of anti microbial medicine to treat infection which kills a wide range of microbes on living surface to prevent the spread of illness. The process which is ment to remove the dravya doshas is called as shodhana. An attempt is made to purify Kampillaka and study its anti microbial activity against Gram positive bacteria Staphylococcus aureus,Bacillus Substilis and Gram negative bacteria E.coli & Sallmonella Typhi. Kampillaka is cheap & easiy available in market. Ayurveda have mentioned many properties of it. While using that particular drug some properties of it may remain unfocused during gradual development of this science. Krimighna property of Kampillaka can be considered as such one which should be focused while doing research. Thus the present study is used to highlight the comparison of antimicrobial activity between 2 different formulation of kampillaka i.e kampillaka oil & kampillaka malhara

Keywords: Mallotus Philippensis,antimicrobial ,E.coli,Salmonella typhi,S.aureus,B.Substilis

Introduction

Ayurvedic means “The Science of Life” Ayurvedic knowledge originated in India more than 5000 years ago and is often called “Mother of all healing”. Its stem from the ancient vedic culture and was taught for many thousands of years in all oral traditional from accomplished masters to their disciples.

Rasa-Shastra is a process by which various metals and other substances including mercury are purified and combined with herbs in an attempt to treat illness. In Ayurvedic therapeutics, three categories of drugs are used viz. (1) Herbal Products, (2) Animal products, and (3) Metals including minerals, gems and precious stones. Apart from their therapeutic efficacy in minute doses, Rasa Ausadhis were found very effective for the preservation and promotion of positive Health and prevention of diseases which is the primary aim of Ayurveda. Rasashastra is classified in Maharasa, Uparasa, Sadharana Rasa Dhatu (Metals) Ratna, Uparatna and Sudha Vargas for the preparation of medicines from the metals and minerals different procedures like Shodhana, Marana, Jaran, Murchana mentioned in the texts of Rasashastra. There are eight sadharana rasa (group of minerals) mentioned in Rasa-Shastra. Kampillaka a drug of herbal origin has categorized as one among them. It is ‘Phalaraja’ (Glands and hair of the fruits) obtained from the plant *Mallotus philippinensis* muell. Useful part of the plant is Phalaraja and should be administered internally after passing through shodhan (purification) process. Although it is a herbal drug, because its usefulness in ayurvedic mercurial preparation (rasasiddhi) it is included under sadharana rasa. It is observed that the drug is used in 44 formulation indicated in Krimirog (worm infection), Twacha rog (skin disease) Shula, Shleshmodara, Premeha etc. Various Upakalpanas like Sneha-Sandhana-Vati-Leha even along with Rasayogas came into existence. Among, “Anekavidha Kalpana” of Bhaishajya (drug) the five basic Kalpanas have their own importance. This five basic Kalpanas are Swarasa, Kalka, Kwatha, Hima, Phanta since this basic kalpanas had several drawbacks such as short Shelf life, taste, palatability etc., several Upakalpanas came into existence On the basis of panchavidha kalpana for e.g. Avaleha Kalpana, Sandhana Kalpana, Sneha Kalpana etc. Sneha Kalpana is well known among them. It is again of two types like Ghrita and Taila Kalpana. Taila Kalpana takes a Lion-share. Because, it is the only one such Kalpana which is used for all four modes of drug administration like Pana, Abhyanga, Nasya and Basti, through all the bodily routes of drug administration. Vata, the master controller of the body physiology when gets altered, it is the taila Kalpana which comes to help. Among the above Kalpanas study of “SNEHA KALPANA” and “MALHARA KALPANA” has been selected to evaluate the efficacy of these and to explore the hidden pharmaceutical properties. The branch Bhaishajya Kalpana plays a key role in manufacturing field by providing rational basis for proper selection utilization and processing of the drug. It bridges the gap between basic medical science and clinical medicine. In this study sneha kalpana medicated oil preparation i.e. kampillaka oil and kampillaka malhara has been prepared to evaluate its antimicrobial activity against Gram positive bacteria *Staphylococcus aureus*, *Bacillus Subtilis* and Gram negative bacteria *E. coli* & *Salmonella Typhi*. An anti microbial is an agent that kills micro organism or inhibits their growth. The use of anti microbial medicine to treat infection which kills a wide range of microbes on living surface to prevent the spread of illness. India is a blessed with a great heritage of traditional knowledge on medicine. Ayurveda being the most ancient and still successfully practiced science among all these system needs a special attention while searching for solution to the unresolved health problems. Kampillaka is cheap & easily available in market. Ayurveda have mentioned

many properties of it. Thus attempt has made to carry out the antimicrobial activity between 2 different formulation of kampillaka i.e kampillaka oil & kampillaka malhara.

AIM

To Evaluate Antimicrobial activity of 2 different formulations of Kampillaka (*Mallotus Philippensis muell.Arg*) i.e Kampillaka Oil & Kampillaka Malhara

Objectives

- To review Kampillak through ayurvedic and modern science literature.
- To evaluate physico-chemical parameters of shuddha Kampillak
- To study Antimicrobial activity of Kampillak using 2 different formulations of application i.e malhara & oil.

Material And Methods

Raw materials were procured from local vender and the pharmaceutical study carried out in drug manufacturing laboratory of the department of rasa shastra and bhaishajya kalpana,ssam hirawadi,nashik with following steps.

Sample 1st Preparation of Kampillaka Malhara

Reference : Rasatarangini chapter 2/34

NO	Raw materials	Quantity
1)	Tila taila	100ml
2)	Bees wax	25gm
3)	Shuddha Kampillaka	25gm

NO	Raw material	Quantity
1)	Shuddha Kampillaka churna	25gm
2)	Tila taila	100ml
3)	Water	400ml

Methods

Kampillak was collected from authentic source.

Shodhan of Kampillak: According to Basava Rajeeyam (Chapter 25:pageno – 389)

Take Kampillak and make Pottali form by using cloth and then keep it in the dolayantra which already having Hareetaki rasa or Kanji make paka. Kampillak will purify.

Procedure

Tila taila was heated in a steel vessel when phena was produced in tila taila, then steel vessel was taken out from fire and beeswax was added little by little and melted well, when beeswax get melted properly in taila then kampillaka kalka was added and all the ingredient were mixed well. Later the mixture was allowed to cool down. The obtained final product is called as Kampillaka malhara

Sample 2nd Preapration of Kampillaka Oil

Reference: Sharangdhar Samhita

Method of preparation

- Heat the tail till it become free from froth.
- Add 4 part of water along with kalka(KAMPILLAK).
- Boil it on moderate heat till the oil became free from water.
- Filter it and use for the purpose.
- By this process unpleasant odour of the oil is removed.
- The kalka and the drava are mixed together,boiled and stirred well continuously so that the kalka is not allowed to adhere to the vessel.
- When all the drava-dravyas have evaporated, the moisture in the kalka will also begin to evaporate; at this stage, it has to be stirred more often and carefully to ensure that the kalka does not stick to the bottom of the vessel.

Observation And Result

Result For Physic-Chemical Evaluation for Shudha Kampillaka.

No.	Test name	Result obtain %
1.	Ph	6.2%
2.	Ash contain	5.21%
3.	Acid insoluble matter	4.21%
4.	Water soluble extractives	17.51%
5.	Alcohol soluble extractives	53.21%
6.	Loss of drying @110 ⁰ C	4.31%

Result For Tlc of Sudha Kampillaka Churn

Rf value 0.8, 0.17, 0.38, 0.58

Result For Physico-Chemical Evaluation for Kampillaka Oil

No.	Test Name	Result Obtained %
1.	Loss on Drying @ 110 ⁰ C	0.190%
2.	Refractive Index	1.4773
3.	pH	5.1
4.	Saponification Value	191
5.	Iodine Value	111
6.	Acid Value	6.2

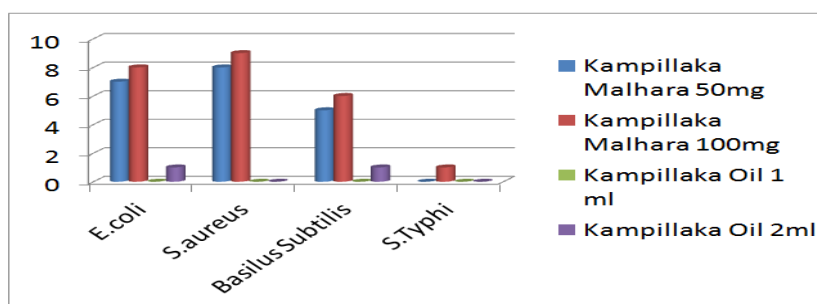
Result For Physico-Chemical Evaluation for Kampillaka Malhara

No.	Test Name	Result Obtained %
1.	pH	7.3

Results for antimicrobial activity of kampillaka malhara and kampillaka taila

Sr.no	Name of the Organism	Kampillaka Malhara 50mg	Kampillaka Malhara 100mg	Kampillaka Oil 1ml	Kampillaka oil 2ml
1	E.coli	7mm	8mm	00	1mm
2	S.aureus	8mm	9mm	00	00
3	Basilus Subtilis	5mm	6mm	00	1mm
4	S.typhi	00	1mm	00	00

GRAPH: Zone Inhibition of Kampillaka Malhara & Kampillaka Oil



1. Kampillaka malhara 50mg and 100mg shows zone of inhibition for *E.coli* at 7mm and 8 mm respectively.
2. Kampillaka oil 1ml and 2ml shows zone of inhibition for *E.coli* at 00 and 1mm respectively.
3. Kampillaka malhara 50mg and 100mg shows zone of inhibition for *S.aureus* at 8mm and 9mm respectively.
4. Kampillaka oil 1ml and 2ml shows zone of inhibition for *S.aureus* at 00 and 00 respectively.
5. Kampillaka malhara 50mg and 100mg shows zone of inhibition for *Basilus Subtilis* at 5mm and 6mm respectively.

6. Kampillaka oil 1ml and 2ml shows zone of inhibition for *Basilus Subtilus* at 00 and 1mm respectively.
7. Kampillaka malhara 50mg and 100mg shows zone of inhibition for *S.Typhi* at 00 and 1mm respectively.
8. Kampillaka oil 1ml and 2ml shows zone of inhibition for *S.typhi* at 00 and 00 respectively.

Conclusion

1. Anti microbial activity of Kampillak Malhara shows more zone of inhibition than Kampillaka oil except 1mm in E.coli, *Basilus Subtilis* & *S.aureus*.Kampillaka Malhara or churna is more therapeutically effective form of kampillaka.
2. Antimicrobial activity of Kampillaka Malhara is observed more (i.e 9mm) against *Salmonella aureus* at higher concentrations.
3. As an antimicrobial Drug oil is less effective form of Kampillaka because of kampillaka is less fat soluble.
4. Kampillaka as well as Sikta both are having antimicrobial property.This collectively results shows better antimicrobial zone against E.coli,S.aures,B.Subtilus.

References

- [1].Charak Samhita commentary by Chakrapani edited by Vaidya Yadavji Trikamj Acharya,Varanasi,Chaukhamba,Sanskrit Sansthan,1994(Kalpasthan12/104)
- [2]. Sushruta(2005),sushruta samhita, with commentary of Dalhana, Ed. Yadavji Trikamji,sutrasthana, 45th chapter/ 112, chowkambha orientalia varanasi.
- [3]. Vriddha vagbhata (2007), Ashtangahrudaya, translated by BrahmanandaTripathi,5thChapter/55-56 chaukhamba Sanskrit pratisthan, New Delhi.
- [4]. Dhanvanthari Nighantu(2005), Ed. P.V.Sharma and Guruprasad Sharma,chaukhamba orietalia varanasi, pp 124-125.
- [5]. Vagbhattacharya (1998), Rasaratna samucchaya, Kampillaka, 3rd chapter/126, Ed. Kapildeogiri, translatedby IndradevaTripathi.Chaukhamba Sanskrit bhavan varanasi. pp 37
- [6]. Madhanapala nighantu (2010),Abhayadivarga, 1st chapter/ 110 Ed. JLN Shastri, chaukhamba orientalia varanasi,pp 80.
- [7]. Dhanvanthari Nighantu(2005), Ed. P.V.Sharma and Guruprasad Sharma,chaukhamba orietalia varanasi, pp 124-125.
- [8]. Bapalal (1998),Nighantu Adarsha, 1stvolume, India:Chaukambha bharti academy varanasi, pp.448.
- [9]. Bhavamishra (2000), Bhavaprakasha, Ed.vidyotini hindi commentary by Brahma sankara Mishra, krimi chikitsa, chaukambha Sanskrit sansthan varanasi.pp 97
- [10]. Rasa Tarangini, Pandit Kashi narayaran Motilal Banarasidas Publication, 11th edition .1979, Page no.22.
- [11]. Rasaratna samucchaya translated by Dr.A.D.Satpute Chapter no.8/55Chaukhamba Sanskrit pratisthan Delhi page no.192.
- [12]. Ayurvediya Aushadikaran Part I, Dhamankar –Puranik Dhootpapeshwar Publication, 2nd edition, Page No.103.
- [13]. Bhaisajya Ratnavali English Translation By Kanjiv Lochan Commented Upon By Vaidya Shri Ambika Datta Shastri Vol.1.
- [14]. Sharangdhar Samhita Madyam Khanda Sanskrit Text With English Translation By Dr. Prabhakar Rao Chaukhamba Sanskrit Sanastan Varanasi.Chapter 9/7 Page 160.