ISBN 978-93-5173-179-3 ISSN 2320-7329
http://www.ayurlog.com Vol. 3 Issue: 2nd April- June 2015
Ayurlog: National Journal of Research in Ayurved Science
A Web based quarterly online published Open Access peer reviewed National E-journal of Ayurved

Preparation of Tuttha And Its Antimicrobial Study

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Abstract:-

Rasashastra is branch of learning of Ayurvedic pharmaceutics specially dealing with metal and minerals. Rasaushadhi have occupied superior status among the ayurvedic medicine because of the their small dose, quick effectiveness, dreadful disease curing capacity etc.

Tuttha is mineral compound of copper with chemical formula CuSO4.5H2O. It is also known as blue vitriol and blue stone that indicated in various diseases. Now days Tuttha very rarely available for that purpose present study deals with the preparation of Tuttha, following the the reference of Rasatarangini, and Its antimicrobial study on streptococcus, staphaylococcus and candida albicans bacteria.

Keyword: Ras Tarangini, Atomic Absorption Spectroscopy, Copper, Sulphur, Iron

Introduction:

Ayurveda is holistic and divine life science developed by herbal-metals-mineral preparations.

Rasashastra is a branch of learning of ayurvedic pharmaceutics specially dealing with metal and minerals. Rasushadhi have occupied superior status among the ayurvedic medicine because of their small dose, quick effectiveness, dreadfull disease curing capacity etc.Bhasma is main therapeutic form of Rasaushadhi.[1]

Tuttha is one of the most popular metal for its widespread applicability scince vedic period, while therapeutic indication of specially prepared metallic powder (Bhasma) is described since samhita period.

Tuttha bhasma is one of the renewed ayurvedic metallic preparation commonly prescribed by the physicians;mostly vatashleshmahar, mutrakrucchranashalk, kandu-rog, udar krimi. For its preparation several maran dravyas and methods are recommended in rasashastra texts. The present study deals with the preparation of Tuttha and its antimicriobial study with the reference of Rasatarangini.

Aim-:

Preparation of Tuttha, and Its Antimicrobial Study.

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Objectives-:

To prepare Tuttha w.s.r. to Rasatarangini (21/145-147)

Materials-:

Instruments: Filter paper, Glass Pot,Glass plate Gas- Burner.

Ingradients: Tamra Churna (Oxide form- Cupric oxide)

Methods –:

Tuttha Preparation:- R.T. 21/145-147

After taking Vishuddha tamra churn(Oxide form) in glass pot Gandhkamla (Dil.Sulphuric Acid) should be added in minute quantity at regular interval upto proper mixing of Tamra churna in Gandhakamla. After that it should be heated on "Mandagni" till it become completely dissolved into the solution. Then the solution were filtered into glass plate with filter parer. Finally for crystallization process of Tuttha, keep it in glass pot. When above mixture becomes sky blue colour of Tuttha will be obtained in crystal form.

Antimicrobial Study :- By Cup- plate method

Observations and results :-

Preparation of Tuttha:-

Observations:-

When heated to sulphuric acid it releases the white fumes.

After addition of the cupric oxide fumes became white and black in coloured.

The whole solution became black in colour, and after some time dissolving cupric oxide crystals in it then solution became blue in colour.

During crystallization process solution gets evaporated and crystals of Tuttha gathered together in glass plate.

Crystals of Tuttha were also appeared on the surface of filter paper at 5th day.

Results:-

Following result were noted during Tuttha preparation

Tuttha Preparation started with small amount

Sr..No.	Components	Amount	Time required for process
1	Cupric oxide	50 gm	35 Days
2	Sulphuric acid	100 ml	
3	Tuttha	14gms	

Total amount preparation of Tuttha

Components	Total amount	Time required for process
Total amount of Cupric oxide used	750 gm	35 Days
Total amount of Sulphuric acid used	1500ml	
Total amount of Tuttha obtained	210	

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Antimicrobial Result:-

Antibacterial study for Raw Tuttha:-

Sr.No	Bacteria	Diameter of inhibition zone in (mm)
1	Staphylococcus	55
2	Streptococcus	47
3	Candida Albicans	53

Discussion:

Analytical report of raw Tuttha, sample were obtained by using Atomic Absorption Spectroscopy (AAS) shown that,

Raw Tuttha, Cu-23.57%, Fe-0.21%, S-16.37%,

Tuttha has demonstrated significant antimicrobial and anti fungal activity which gives further scope for experimental study on variouss microorganisms.

References:

1. Kashinath Shastri- Rastarangini,. 11th edn.1979, Motilal Banarasidas, Varanasi, 21th chapter, Slocka 145-147, Page-540,553

Conclusions:

For Preparation of 14 gms of Tuttha required 50 gms of curic oxide and 100 ml of Dil. Sulphuric Acid and with about 7 days time interval. So also for preparation of large quantity of Tuttha required about 750 gms of cupric oxide and 1500 ml of Dil. Sulphuric acid with 35 days time duration. Because of ,,Cu toxicity raw tuttha shows antimicrobial activity , where it has more antimicrobial action on Staphylococcus (55mm zone of inhibition) than Candida albicans and Sterptococcus which is (53mm zone of inhibition) and (47mm zone of inhibition) respectively. Particle size of raw tuttha is (122.86 µm)

Acknowledgement:-

I express my deep sense of gratitude to my respected guide, Dr. S.C. Bakare YAMC PGT & RC, R.S.&B.K dept. Kodoli for the valuable guidance, encouragement and support during this project.

Cite this article:
Narendra Ratan Ahire, S.C.Bakare
Preparation of Tuttha And Its Antimicrobial Study
Ayurlog: National Journal of Research in Ayurved Science-2014; 3(2): 1-3