WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.084
Volume 11, Issue 13, 1201-1206. Case Study ISSN 2277– 7105

ANTIBACTERIAL EFFECT OF *GUDUCHI KWATH* (TINNODPORA CORDIFOLIA WILLD.) ON PYOGENIC BACTERIA BY CULTURE AND SENSITIVITY METHOD - A SINGLE CASE STUDY

[*1]Dr. Prashant Chhagan Patil and [2]Dr. Sumedha Anay Karambelkar

[1]Assistant Professor, Department of Rog Nidana Evum Vikriti Vigyan, BSDT's Ayurved Mahavidyalaya, Wagholi, Pune, Maharashtra, India.

[2]Assistant Professor, Department of Swasthavritta & Yoga, BSDT's Ayurved Mahavidyalaya, Wagholi, Pune, Maharashtra, India.

Article Received on
27 July 2022,

Revised on 16 August 2022,
Accepted on 05 Sept. 2022

DOI: 10. 20959/wjpr202213-25518

***Corresponding Author**
Dr. Prashant Chhagan Patil
Assistant Professor,
Department of Rog Nidana Evum Vikriti Vigyan,
BSDT's Ayurved Mahavidyalaya, Wagholi,
Pune, Maharashtra, India.

ABSTRACT

Antibiotics are one of the most important weapons in fighting bacterial infections and have greatly benefited the health related to human life, these health benefited are under threat as many commonly used antibiotics have become less effective against certain illness not only because many of them produces toxic reaction, but also due emergence of drug resistant bacteria. *Guduchi* (Tinospora Cordifolia) has been reported as drug of choice in many disease conditions in *Ayurveda*. The study was planned to evaluate the anti-bacterial property of *Guduchi kwath* on Pyogenic bacteria by culture & sensitivity method for the study, 1 patient was selected & pus sample was used for culture by sticking method & colony characters are observed & gram staining done. Then specially made *Guduchi Kwath* discs are used for sensitivity in MH agar. Zone of inhibition is the criteria of assessment of sensitivity. Whole study was in vitro. The bacteria's during study is Staphylococcus haemolyticus. It was observed that *Guduchi Kwath* shows significant activity against above organism.

KEYWORDS: *Guduchi, Krimighna,* Staphylococcus haemolyticus, Antibacterial acivity.

INTRODUCTION

Antibiotics are one of the most important weapons in fighting bacterial infections and have greatly benefited the health related to human life since their introduction.

In this modern era we see many patient suffering from various infections due to many causes such as accidents, burn and many others. Neglecting of such wounds, result in suppuration of wound. This pus formation is done by some Bacteria's which are known as "Pyogenic Bacterias". Process of pus formation is called "Suppuration." For prevention and to get relief from infectious diseases, antibiotics are used frequently but its indiscriminate use may lead to resistance or tolerance. Due to development of resistance to antibiotics in present day, there is needed to evaluate new antibiotic which are equally effective.

This could be done by detecting the organism on basis of culture methods and finding out the sensitivity of these organisms to particular drug of same properties. There are various methods of culture. In *Ayurvedic* medicines there are several *Dravyas* which also posses '*Krimighna'* & *Vranashodhak* properties. *Guduchi* (Tinospora cordifolia Willd.) is one of the *Krimighna dravyas* mentioned by various *Ayurvedic Samhitas* and *Nighantus*.*Bhavprakash* described *Guduchi* as a *Krimighna Dravya.*[1] According to *Acharya Charak, Guduchi* describes in "*Tiktaskandha"*.[2] due to its *Tikta Rasa* so described in *Guna* of *Tiktarasa*[3] he mentioned. According to *Acharya Sushruta, Guduchi* describes the *Krimighna* properties with its *Vranashodhak* and *Vranya* properties in *Aaragvadhadi Gana*[4] and *Patolyadi Gana.*[5] All this references shows *Krimighna, Vranashodhak, Vranya* are *Guna* of *Guduchi*. So it may have activity against Pyogenic bacteria's.

Culture and sensitivity method generally proves activity of certain drug against certain microorganism. Sensitivity is decided by seeing zone of inhabitation surrounding discs, it indicates susceptibility of microorganism.

AIMS AND OBJECTIVES

1) To study *Guduchi Kwath* & it's antibacterial properties.
2) To study pyogenic bacteria.
3) To study method of culture & sensitivity.
4) To assess effect of *Guduchi kwath* on the pyogenic bacteria by culture and sensitivity method.

MATERIAL AND METHODS

1) Material

Plant material- :- *GUDUCHI*[6]

Drug: - *Guduchi Kwath* Contents

1) *Guduchi Kwath*.

Latin Name –Tinospora Cordifolia.(Willd.)

Family- Mesipermaceae.

Virya - Ushana.

Vipak-Madhur.

Guna- Guru,Snigdha.

Rasa-Tikta, Kashay.

Karma: Krimighna, Kushtaghna, Varnya.

Medicinal Action:- Antiinflammatory, anti-hepatotoxic, antibacterial. Plant pacifies vitiated *Kapha*, *Pitta*, skin diseases, wounds, inflammations, and allergy.

Material For Preparation Of Agar:- MacConkey agar, Nutrient agar, Autoclave, Water, MH Agar.

Material For Culture And Sensitivity:- Pus sample, Petri dish, Nicrome Wire loop, Incubation hood , Incubator, *Guduchi Kwath* discs.

Total No of Patients:- 01.

2) Methodology

Pus collected will be:- Infected wound. PUS samples from infected site of selected cases/patient.

1) *Guduchi Kwath* prepared from *Guduchi Kand* as described by *Ayurvedic* tests.

2) Agar media for culture of Pyogenic bacteria.

3) Pus sample collected from infected site of selective patients to do pus culture by using Mac Conkey agar.

4) Gram staining of pus sample done.

5) Cultured growth & Gram staining determines pyogenic bacteria.

6) Sensitivity of pyogenic bacteria to *Guduchi Kwath* discs analysed by using Nutrient agar, MH Agar.

Selection Criteria

A] Criteria for Inclusion

1) Pus collection from infected wound.

2) Age – all age group.

3) Pus collection from diagnosed patients of infected wound.

B] Criteria for Exclusion

1) Patients with HIV and HbsAg. – Positive.

2) Patients with fresh wound.

Investigations:- For purpose of examining patient and exclude other diseases.

1) Complete Blood Count

2) BSL (Random)

3) HIV (Tri-dot)

4) HbsAg.

Study Type:- A single case Study. It was experimental study. Pus sample and those samples were observed by culture and sensitivity method. An informed written consent of patient included in study will be taken in the language best understood by them. Duration of study is 3 days to do culture and sensitivity test.

Place of work:- Pus sample collected from IPD patient of of BSDT's Ayurved Mahavidyalaya Wagholi Pune.

Preparation Of Guduchi Kwath[7]

Guduchi kwath is prepared from *Guduchi Kand*.

Disc Preparation

1) The material usually required is *Kwath*, Whitman paper no2, forceps, Petri dish & punching machine.

2) First Cut paper discs from Whitman No.2 filter paper with the help of paper punching machine (6 mm in diameter).

3) Keep this paper discs in prepared *Kwath* for 10 mins. Then place the disc in Petri dish with the help of sterilized forceps.

4) Let discs dries for an hour and then stored it in a refrigerator (40^{o}C) and used for sensitivity.

Culture And Sensitivity:- Culture and sensitivity of the pyogenic bacteria's to *Guduchi* which have been taken for the study will be seen by using disc prepared from *Guduch*i by method

Criteria For Assessment: - It will be done by observing zone of inhabitation in surrounding discs.

OBSERVATION AND RESULT

In ABC Male patient age of 48 yrs old having infective wound. Pus collected from this wound, Staphylococcus haemolyticus was found & disc preparation and observed zone of inhabitation in surrounding discs was sensititive, so that Staphylococcus haemolyticus was sensitive to *Guduchi Kwath.*

DISCUSSION

Pus formation occurring at the sites of *Ashadhya Vrana* is very much frequently see now days. Reasons vary with resistance to current brand of antibiotics, *Ahitar ahar- Vihar* of patients.

According to isolated micro-organism:- In this study the micro-organism (bacteria) isolated by pus culture method is Staphylococcus haemolyticus.

1-Staphylococcus haemolyticus, found in 1 patient.

2-Staphylococcus haemolyticus is sensitive to *Guduchi Kwath*.

CONCLUSION

Conclusion obtained from present study is as follows.

1] Staphylococcus haemolyticus is sensitive to *Guduchi kwath*.

2] *Guduchi kwath* shows antibacterial action against staphylococcus haemolyticus.

REFERENCES

1. Bhavaprakasha of Bhavamishra, Vd.K.C. Chunekar, Chaukhamba Prakashana, Varanasi, 2006; p.269.
2. Charaka, Charaka Samhita (Vaidyamanorama, Hindi Commentary), Vol I, Acharya Vidyadharshulka, Prof. Ravidatta Tripathi, Chaukhambha Sanskrut Prakashan, 2004; Vimansthan 8/143 p. 664.
3. Charaka, Charaka Samhita (Vaidyamanorama, Hindi Commentary), Vol I, Acharya Vidyadharshulka, Prof.RavidattaTripathi, ChaukhambhaSanskrut Prakashan, 2004; Sutrasthan, 26/42, p. 371.

4. Sushruta; Sushrut Samhita(Susrutavimarsin Hindi commentry), Vol I, Vd. AnantramSharma, Chaukhambha Surbharati Prakashan; Varanasi, 2008; Sutrasthan 38/6-7, p.294.
5. Sushruta; Sushrut Samhita(Susrutavimarsin Hindi commentry), Vol I, Vd. AnantramSharma, Chaukhambha Surbharati Prakashan; Varanasi, 2008; Sutrasthan, 38/33-34, p.299.
6. Dravyagunavidnyan, Vd. Vishnu mahadevGogate, Vaidyamitraprakashan, 2008; p.345.
7. Sharangdhar Samhita, Dr. shailaja Srivastava, Chaukhambha Sanskrit Sansthan, 2009; p.133.