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**EVALUATION OF ANTI - MICROBIAL ACTIVITIES OF THE SIDDHA POLY  
HERBO - MINERAL FORMULATION UDARANOI NIVARANA THIRAVAGAM**

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**ABSTRACT**

*Udara Noi Nivarana Thiravagam* is a herbo mineral formulation taken from *Anuboga vaidya Navaneetham* which has been indicated for its anti microbial properties. All the ingredients in the drug were properly collected, preserved and authenticated by experts. The Ingredients are purified properly as per the traditional Siddha Literatures. The aim of the present study was to validate the anti microbial property of *Udara Noi Nivarana Thiravagam*. **Preface:** The present study examined the *in-vitro* screening of antimicrobial activity of siddha drug *Udara Noi Nivarana Thiravagam* in albino rats. **Methology:** The antimicrobial activity of *Udara Noi Nivarana Thiravagam* were tested for antimicrobial activity through Kirby-Bauer method (Agar diffusion testing). The microorganisms used in the present study include *Staphylococcus aureus*, *E.coli*, *klebsiella*, *pseudomonas aurigenosa*. **Outcome:** It was observed that antimicrobial studies of UNT showed that it is sensitive against *E-coli*, *Klebsiella penumoniae* and *Pseudomonas aeruginosa*.

**KEYWORDS**

Siddha, *Udara Noi Nivarana Thiravagam* and Anti-microbial activity.

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**INTRODUCTION**

Siddha System is the primitive form of medicine practiced from the ancient times. The System was invented by Siddhars. They followed various measures to cure diseases. They wrote various formulations. According to the ancient philosophies, drugs from herbs have been using for the elimination of microorganisms. Many plants derivatives such as spices, fruit preparations, vegetable preparations or extracts have been used for centuries for the preservation and extension of

the shelf life of foods. Plants produce a diverse range of bioactive molecules, making them a rich source of different types of medicinal compound; have continued to play a dominant role in the maintenance of human health, since ancient times. Over 50% of all modern clinical drugs are of natural product origin and it also plays an important role in drug development programs in the pharmaceutical industry.

Herbomineral medicine holds an indispensable major position in Siddha pharmacology. The Siddhars had a systematic approach towards the selection of drugs starting with herbs and ending with higher order medicines of metals and minerals. This formulation is called *Thiravagam*. It is one of the 32 internal medicine in the Siddha system, being in liquid form it acts very quick than other formulations, it is called as *Pugai neer and Sakthi neer*.

In the present study *Udara Noi Nivarana Thiravagam*, Siddha formulations mentioned in the Classical Siddha texts consists of salts, minerals and plant products. The drug is used in the treatment of Gunmam (Peptic ulcer disease). The route of administration is internal via oral. The recommend dose is 8.4 – 16.8grams with hot water as adjuvant is taken for the testing of antimicrobial activity.

## MATERIALS AND METHODS

### Collection of the raw drugs

The raw drugs *Kariyuppu* (Sodium Chloride), *Karchunnam* (Lime stone), *Uzhamun* (Sodium carbonate) and root bark of *Mutsangan* (*Azima tetracantha*) are brought from local drug shop in Tirunelveli, Tamilnadu.

Fresh leaves are *Yanai Nerunjil* (*Pedaliium murex*) was brought from Thuckalay, Kanyakumari district, Tamil Nadu.

### Identification and authentication of raw drugs

The raw materials were identified and authenticated by the experts of PG Gunapadam Department, Government Siddha Medical College, Tirunelveli.

The identified raw materials were conserved in the laboratory of PG Gunapadam Government Siddha Medical College, Tirunelveli for further reference

### Purification of the raw drugs

#### Purification of *Kariyuppu* (Sodium Chloride)

Sodium chloride was dissolved in seawater or rainwater and filtered. The filtrate is boiled into a semisolid in state. Then it is placed under day light. It was allowed to dry and scrapped from the vessel.

#### Purification of *Karchunnam* (Lime stone)

Limestone was heated in water and it was dried under daylight.

#### Purification of *Uzhamun* (Sodium bicarbonate)

Sodium bicarbonate was mixed with water and the filtrate was boiled until to a semisolid state then it was placed under day light and allowed to dry. The dried salt bars were scrapped from the vessel.

#### Purification of *Mutsangan* (*Azima tetracantha*)

*Azima tetracantha* root bark was taken and the outer covering of the roots were removed with a knife.

#### Purification of *Yanai Nerunjil* (*Pedaliium murex*)

Leaf of the *Pedaliium murex* was cleaned with a cloth and the dried and infected leaves were removed.

### Preparation of the drug - *Udaranoi nivarana Thiravagam*

### Reference of the drug - *Udaranoi nivarana Thiravagam*

*Udaranoi nivarana Thiravagam* (UNT) has been selected from the classical siddha literature *Anuboga viadhya navanetham* part -3.

### Ingredients of the test drug

The ingredients of the drug are as follows

*Kariyuppu* (Sodium chloridium )

*Karchunnam* (Lime stone)

*Uzhamun* (Sodium bicarbonate)

Root barks of *Muttsangan* (*Azima tetracantha*)

Leaves of *Yannai nerunjil* (*Pedaliium murex*)

Well water- 5.2 litres

### Preparation of the medicine -*Udaranoi nivarana Thiravagam*

The mineral drugs and the root of *Azima tetracantha* and leaves of *Pedaliium murex* are grinded well and transferred to the distillation

apparatus (*valaiyanthiram*) an intensely heated. During the process of heating the drugs were completely decomposed and expel the fumes. The fumes are condensed at the condenser submerged in cold water and the drug was collected in a vessel.

**Preservation of the drug**

It is stored in a tight glass container to prevent any other contamination.

**Pharmacological evaluation**

**Antimicrobial activity of *Udara Noi Nivarana Thiravagam***

**Method**

Kirby-Bauer method (Agar diffusion testing).

**Nutrient broth preparation**

The sterilized (autoclaved at 120°C for 30 min) medium (40-50°C) was inoculated (1ml/100ml of medium) with the suspension (150 cells per ml) of the Micro-organism (matched to Mc Farland turbidity standard) and poured in to a Petri dish to give depth of 3-4mm.

**Cleaning and sterilization**

The glass-wares used were cleaned with cleaning solution and sterilized in hot air oven to 180°C for 3 hours. All nutrient media were sterilized by autoclave (121°C, 15psi for 15-20 mins).

The paper saturated with the test compounds *Udara Noi Nivarana Thiravagam* was placed on the solidified medium.

The plates were pre-incubated for 1 hour at room temperature and incubated at 37°C for 24 and 48 hours for anti-bacterial activities respectively.

**Standard - control drug**

Amikacin is used as standard for anti-bacterial respectively at the concentration of 50mcg / disc.

*In-vitro* antimicrobial activity of *Udara Noi Nivarana Thiravagam* was screened against bacteria strains such as

*Staphylococcus aureus*, *Escherichia coli*, *Klebsiella pneumoniae* and *Pseudomonas aeruginosa*.

**Observations and Inference of the Anti-microbial activity**

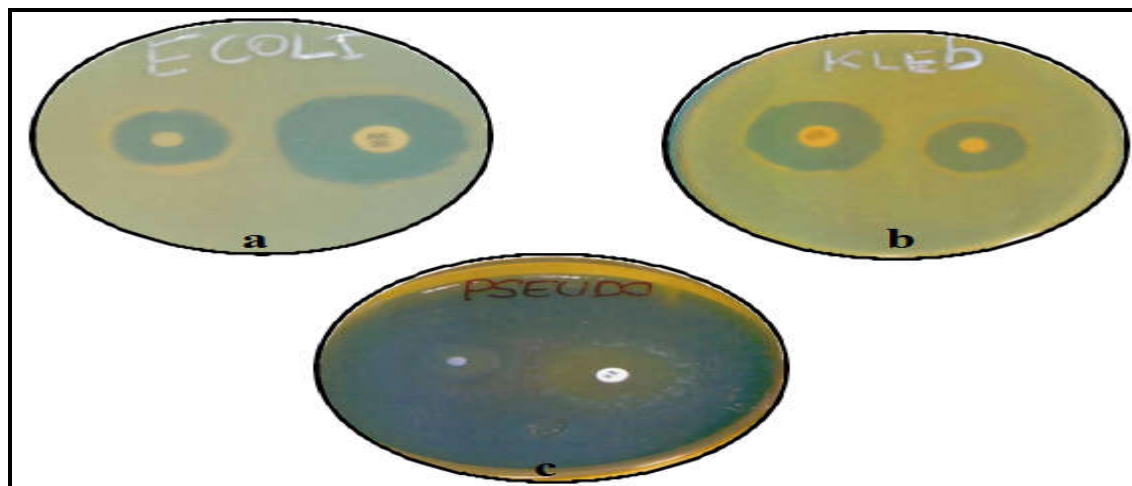
It was observed that antimicrobial studies of UNT showed that it is sensitive against *Escherichia coli* inhibition of the growth of the micro organism at 100µ/ml concentration for the organism. Our results confirmed the traditional use of UNT has antimicrobial activity.

**DISCUSSION**

In the alternative methods, the uses of plant materials to control pathogenic microorganisms have been considerable interest in the recently and plants products have been shown resistant against pathogenic bacteria. The emergence of multi-drug resistant strain of many pathogens is a serious threat and makes more difficult to cure diseases. The development of effective natural and non-toxic drug for treatment must be directed towards. The present study was to explain the antimicrobial property of Siddha poly herbo-mineral formulation *Udaranoi Nivarana Thiravagam*.

**Table No.1: Observations of the anti microbial activity of the *Udara Noi Nivarana Thiravagam***

S.No	Test drug	Organism (Culture)	Susceptibility	Zone inhibition	
				Amikacin Control	Test Drug
1	UNT	<i>Staphylococcus aureus</i>	Resistive	-	-
2		<i>Escherichia Coli</i>	Sensitive	21mm	14mm
3		<i>Klebsiella pneumoniae</i>	Sensitive	21mm	15mm
4		<i>Pseudomonas aeruginosa</i>	Sensitive	21mm	11mm



**Figure No.1: Observations of the anti microbial activity**  
a) *Escherichia Coli* b) *Klebsiella pneumoniae* c) *Pseudomonas aeruginosa*

## CONCLUSION

The Siddha formulation *Udaranoi Nivarana Thiravagam* (UNT) has promising action in the management of super opportunistic infections caused by both gram positive as well as gram negative organisms in peptic ulcer disease.

UNT showed highly sensitive inhibitory actions against both classes of bacteria. It is concluded that this study would exhibit some valuable compound that has to be used to more potential antimicrobial drugs of natural origin. Further studies are needed to identify the biologically active compounds and to evaluate the efficiency of the compound against pathogenic microorganisms associated with various human diseases.

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## CONFLICT OF INTEREST

We declare that we have no conflict of interest.

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