

Anantamool (*Hemidesmus indicus*) as herbal blood purifier in Ayurvedic medication

*S. Farooq, Zafar Mehmood and A. K. Dixit

Himalaya Wellness Company Dehradun

*Email: dr.sfarooq.him@gmail.com

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Abstract- There are no synthetic medications used for blood purifiers that are effective in purifying the blood and treating various illnesses. Plants have long been a reliable source of medicine. Plants are mentioned in Ayurveda and other Indian literature as being used to treat a variety of human diseases. Herbs referenced in ancient texts or historically used for various disorders have yielded astonishing benefits. Various market formulations are available that aid in blood purification. In this research, we look at a variety of herbal plants that are good for blood purification and cleaning and are commonly found in various market formulations. Anantamool *Hemidesmus indicus* has a lengthy history of use as a blood purifier, tonic, and alterative. In the Ayurvedic medicine system, *Hemidesmus indicus* is a well-known drug. *Hemidesmus indicus* root bark extract possesses antioxidant effects. One of the ways by which this medicine is useful in numerous free radical mediated illness situations is its ability to scavenge free radicals. Furthermore, it has anti-inflammatory properties. Herbal blood purifiers (Raktasaaf) have no single therapeutics activity but have multiple therapeutics activities. The present investigation is designed to test its antimicrobial activity

that can validate its use as a blood purifier in different Ayurvedic Formulations. The results revealed promising antibacterial activity against pathogenic bacteria.

Keywords: *Hemidesmus indicus*; Blood purifier; Antioxidant; Anti-inflammatory activity; Ayurvedic medication, antibacterial activity, antimicrobial activity

Introduction

There are no synthetic medications used for blood purifiers that are effective in purifying the blood and treating various illnesses caused by blood pollutants. There are several medications for different problems associated to blood impurities. When these treatments are administered to a person, they have an effect on the condition, but they only cure one disease, and they also have adverse effects. We can use herbal medications to help cure these problems with less adverse effects in herbal medications. We employ Poly herbal formulation in herbal medications. At first, a blood purifier can aid with increased bowel movement, which is a transient phase. It takes two or three days, and it is highly suggested because

it aids in the blood cleansing process. Either starts with tiny doses and gradually increases after two or three days, or starts with the suggested amount and wait for the bowel movement to clear. It stimulates the liver and kidneys, making them healthier and more active. Our skin becomes more healthy, glossy, smooth, and silky with a natural shine as our system is cleansed. Skin that is healthy is less susceptible to diseases and infections¹.

Plants have long been a reliable source of medicine. Plants are mentioned in Ayurveda and other Indian literature as being used to treat a variety of human diseases. When blood becomes polluted owing to poor circulation, it causes ailments such as acne, pustules, and rashes, as well as complications from allergies, a weakened immune system, headaches, jaundice, wrinkles on the face, spinning of the head, hair loss, failing eyesight, and joint tightness.¹

Anantamool (*Hemidesmus indicus*) family: Asclepiadaceae The plant has a long history of use as a blood purifier, tonic, and alterative. In the Ayurvedic medicine system, *Hemidesmus indicus* is a well-known drug². *Hemidesmus indicus* root bark extract possesses antioxidant effects. One of the ways by which this medicine is useful in numerous free radical mediated illness situations is its ability to scavenge free radicals. Furthermore, it has anti-inflammatory properties.^{3,7 and 8}

Herbal blood purifiers (Raktasaaf) have no single therapeutics activity but have multiple therapeutics activity due to poly herbal formulation with lesser side effects. There are different herbal drugs

formulations in market which have similar activity of blood purifier and Raktasaaf contain common plants. 'Raktasaaf formulations' not shows only blood purifier property but also have other properties like antibacterial, antifungal, immunomodulators etc. Raktasaaf have greater therapeutics effect then their side effects.

One possible approach is to test plants extracts for their potential to be used against multi-resistant bacteria. India has one of the world's richest flora with about 120 families of plants comprising 1,30,000 species and about 119 secondary plant metabolites are used globally as drugs. The WHO reported that 80% of world population rely chiefly on traditional medicines/herbs for primary healthcare have steadily increased worldwide in the recent years⁶. Keeping in view this study is designed to evaluate the antimicrobial activity of *Hemidesmus indicus*.

Material and Methods

Collection of plant materials- *Hemidesmus indicus* roots were collected from the Himalaya Wellness Company Dehradun India. The collected plant material was identified by Dr. Mayaram Uniyal department of Pharmacognosy, Himalaya Wellness Company Dehradun. Roots were washed under the running tap water 2-3 times and once with sterile distilled water and dried under shade and then homogenized to fine powder and stored in air tight container till further use.

Preparation of solvent root extraction- The method of Alade and Irobi⁴, (1993) was adopted for preparation of plant

extracts with little modifications. The dried 25 g powdered root soaked separately in 100 ml Hexane, methanol, and aqueous. Each solvents were kept in separate flasks with powdered sample were kept in a rotating shaker for 3 days. The extracts were filtered through whatman Filter paper No.1 and the extracts were reduced to half of its original volume. The organic solvents were concentrated in vacuum using rotary evaporator, while aqueous extract was dried using water bath.

Culture media-The media used for antibacterial test was soyabean casein digest agar/broth of Hi Media Pvt. Ltd. Bombay, India.

Inoculum-The bacteria were inoculated into soyabean casein digest agar /broth and inoculated and incubated at 37 °C for 4 h and the suspension was checked to provide approximately 10⁵ CFU/ml.

Microorganisms- The antibacterial activity of the extract was tested individually on G+ve and G-ve bacterial strains. All bacterial strains were obtained from IMTECH, Chandigarh India. The G+ve strain used was *Staphylococcus aureus* MTCC 737 and G-ve bacterial strains were *E.coli* MTCC 1687; *Pseudomonas aeruginosa* MTCC 1688 and *Salmonella enteric* MTCC 3858. and *Candida albicans* MTCC 3017.

Determination of antibacterial/ anti-candidal activity- The agar well diffusion method (Perez et al; 1990)⁵ was modified. Soyabean casein digest agar (SCDA) was used for bacterial cultures. The culture medium is inoculated with the microorganisms suspended in

soyabean casein digest broth. A total of 8mm diameter wells were punched into agar and filled with plant extracts and solvent blanks (distilled water, hexane and methanol as the case may be). Standard antibiotic was simultaneously used as positive control. The plates were then incubated at 37°C for 18 h. The antibacterial/anticandidal activity was evaluated by measuring the inhibition zone diameter observed.

Wells were filled with 0.1 ml of 20 mg/ml concentration of each sample (2mg/well). Bioactivity was by measuring Diameter of Inhibition Zones (DIZ) in mm.

Results and Discussion

Among all the tested extracts hexane extract was found to have maximum zone of 22mm against *Staphylococcus aureus* (Table-1, Figure-1 and 2 & Plate-1) followed by *E.coli* (18mm), *Candida albicans* (18mm), *Pseudomonas aeruginosa* (16mm) and *Salmonella enterica* (15mm). The significant antimicrobial effect of *Hemidesmus indicus* against all the pathogen confirmed that the compound present in the crude extract are responsible for the effective antimicrobial activity.

The traditional therapeutic indications of *Hemidesmus indicus* as blood purifier studied appear to have a fairly good degree of correlation with their antimicrobial activity. The herb *Hemidesmus indicus* appear to have broad spectrum of action, it could be useful in antiseptic, disinfectant formulations and in chemotherapy. The antibacterial activities of the herb is particularly noteworthy, considering the

importance of these organisms in infection control and as blood purifier.

Table-1 Antimicrobial activity of *Hemidesmus indicus* root extract

S. No.	Test microorganisms	Diameter of zone of inhibition(mm)			
		Hexane extract	Methanol extract	Aqueous extract	+VE Control Ciprofloxacin 30µg/ml
1.0.	<i>Staphylococcus aureus</i> MTCC 737	22	16	NAD	25
2.0.	<i>E.coli</i> MTCC 1687	18	14	NAD	21
3.0.	<i>Pseudomonas aeruginosa</i> MTCC 1688	16	12	NAD	22
4.0.	<i>Salmonella enterica</i> MTCC 3858	15	13	NAD	21
5.0.	<i>Candida albicans</i> MTCC 3017	18	16	NAD	----



Plate-1 Antibacterial activity of Hexane extract against *Staphylococcus aureus* (MTCC 737)

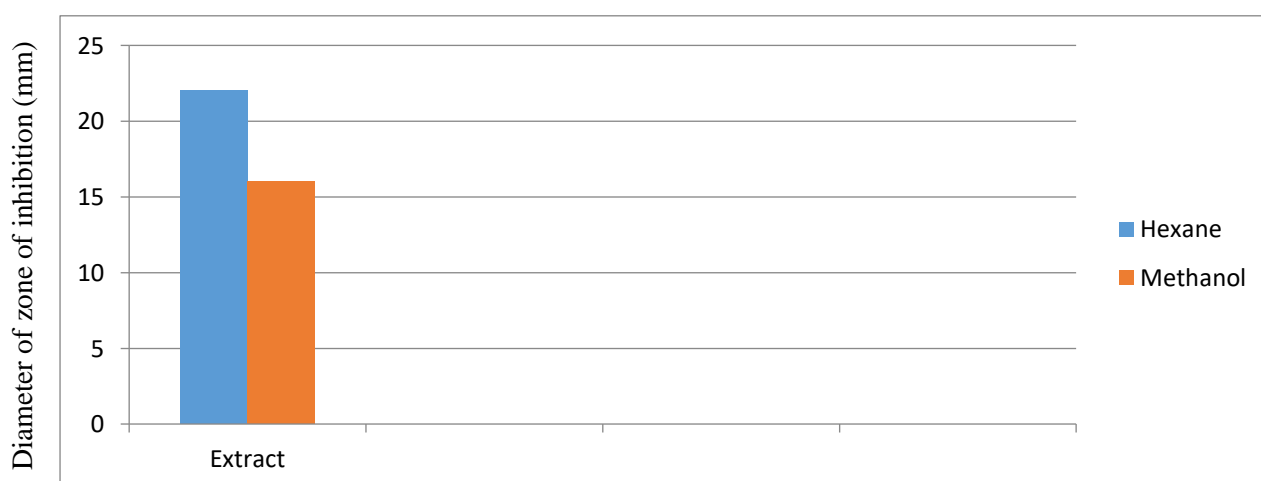


Figure-1 Antimicrobial efficacy of Hexane and Methanol extract of *Hemidesmus indicus* in the form of Diameter of zone of inhibition

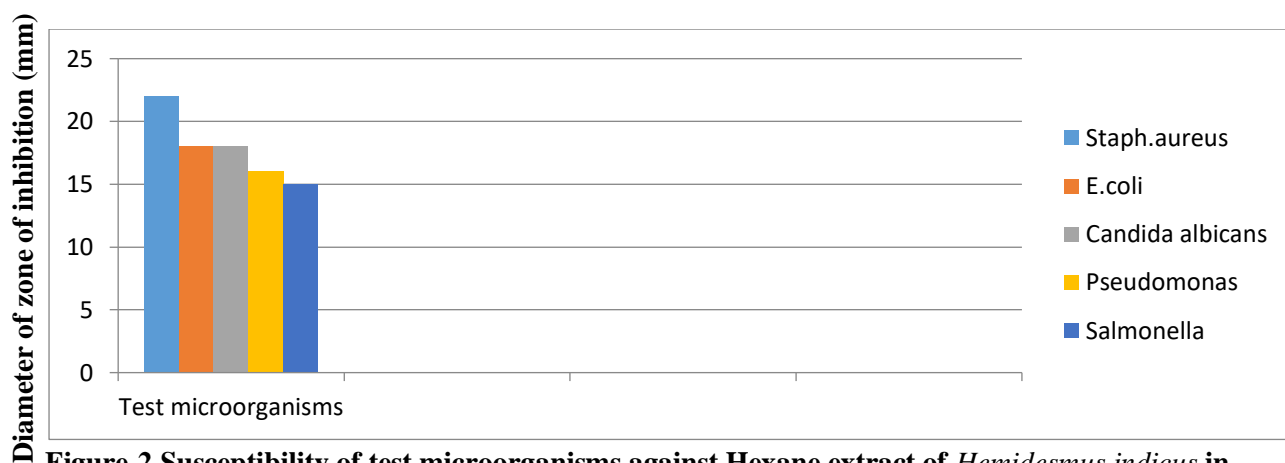


Figure-2 Susceptibility of test microorganisms against Hexane extract of *Hemidesmus indicus* in the form of diameter of zone of inhibition(mm).

Disclaimer Statement

Authors declare that no competing interest exists. The products used for this research are commonly used products in research. There is no conflict of interest between authors and producers of the product.

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