Journal of Advances in Science and Technology

Vol. VI, Issue No. XI, November-2013, ISSN 2230-9659

A STUDY POTENTIAL OF EUPHORBIA HIRTA LINN AGAINST ANTIBIOTICS RESISTANT URINARY TRACT INFECTIONS

AN INTERNATIONALLY INDEXED PEER REVIEWED & REFEREED JOURNAL

www.ignited.in

Journal of Advances in Science and Technology
Vol. VI, Issue No. XI, November-2013, ISSN 2230-9659

A Study Potential of Euphorbia Hirta Linn against Antibiotics Resistant Urinary Tract Infections

Kalpana

Research Scholar, CMJ University, Shillong, Meghalaya

Abstract – The increasing incidence of antibiotic resistance among bacterial pathogens necessitates medicinal plants as an alternate therapy in restricting the resistant infectious organisms. In this primitive study, the antibiotic resistance of organisms isolated from urinary tract infected patients was discussed.

Keywords: Bacteria, Euphorbia, Hirta, Antibiotic, Urinary Tract Infections

----------♦----------

INTRODUCTION

Bacteria acquire resistance genes from other bacteria when: Microorganisms join together and transfer DNA to each other; Free-floating DNA pieces (called plasmids) are picked up, which can carry resistance to a number of antibiotics; Small pieces of DNA jump from one DNA molecule to another, and then are incorporated; and DNA remnants are scavenged from dead or degraded bacteria. Once a resistance gene is picked up and added to a bacterium's DNA, the bacterium can dominate other bacteria, and pass the resistance gene on to all of its descendants. Resistance is magnified because bacteria multiply rapidly. Antibiotic resistance will eventually occur because of evolutionary natural selection, but the misuse and overuse of antibiotics is dramatically escalating the process. The ayurvedic system of medicine has discovered various herbal formulations in the treatment of various diseases, which play an important role in modern health care and curing various ailments and diseases (Nostro, *et al*., 2000). The uses of herbal medicine are in great demands as a primary health care, as plant based herbal medicines are thought to be non-toxic, less side effects and easily available at low cost (Ernst, 2000).

REVIEW OF LITERATURE:

Urinary tract infections (UTI) are among the most commonly observed infections in clinical practice, and more than 25% of all women experience some form of UTI at least once during their lifetime. It also contributes the most common nosocomial infection in many hospitals, and accounts for approximately 35% of all hospital acquired infections. Majority of UTIs are not life threatening and do not cause any irreversible damage. However, when the kidneys are involved, there is a risk of irrepairable tissue damage with an increased risk of bacteremia (Hvidberg *et al*., 2000). Resistance of pathogenic organisms to approved antibiotics has become a worldwide problem with serious consequences on the treatment of infectious diseases. The increased use/misuse of antibiotics in human medicine, veterinary and agriculture is mainly contributing to the phenomenon. There is an alarming increase of antibiotic resistance of bacteria that cause either community infections or hospital acquired infections. Of particular interest are the multidrug resistant pathogens, *e.g. Eschericchia coli*, *Klebsiella pneumoniae*, *Acinetobacter baumanii*, methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant MRSA penicillin-resistant *Streptococcus pneumoniae* (PRSP), vancomycin-resistant *Enterococcus* (VRE), and extensively drug-resistant (XDR) *Mycobacterium tuberculosis (*Alekshun *et al*., 2007). Resistance to methycillin and vancomycin is most commonly developed in nosocomial infections and non-hospital units. Penicillin-resistant *Streptococcus pneumoniae* is frequently detected in paediatric units. Hospital infections with methycillin-resistant *Staphylococcus aureus* occur most frequently in patients with invasive medical handling or immune suppressed patients with prolonged treatment in health care centres or dialysis Community infections are more virulent and spread faster, causing more severe health problems (Aupert *et al*., 2004; Haute Autorite Desante, 2008).

EUPHORBIA HIRTA:

Euphorbia hirta L. belongs to the family Euphorbiaceae. It is a small annual herb common to tropical countries. It is usually erect, slender-stemmed; spreading up to 80 cm tall, though sometimes it can be seen lying down. The plant is an

annual broad-leaved herb that has a hairy stem with many branches from the base to the top. The leaves are opposite, elliptical, oblong or oblong-lanceolate, with a faintly toothed margin and darker on the upper surface. The flowers are small, numerous and crowded together in dense cymes (dense clusters in upper axils) about 1 cm in diameter. The stem and leaves produce a white or milky juice when cut. It is frequently seen occupying open waste spaces, banks of watercourses, grasslands, road sides, and pathways (Upadhyay *et al.,* 2010). *E. hirta* is a very popular herb amongst practitioners of traditional medicine, widely used as a decoction or infusion to treat various ailments including intestinal parasites, diarrhoea, peptic ulcers, heartburn, vomiting, amoebic dysentery, asthma, bronchitis, hay fever, laryngeal spasms, emphysema, coughs, colds, kidney stones, menstrual problems, sterility and venereal diseases. Moreover, the plant is also used to treat affections of the skin and mucous membranes, including warts, scabies, tinea, thrush, aphthae, fungal afflictions, measles, Guinea-worm and as an antiseptic to treat wounds, sores and conjunctivitis. The plant has a reputation as an analgesic to treat severe headache, toothache, rheumatism, colic and pains during pregnancy. It is used as an antidote and pain relief of scorpion stings and snakebites. The use of the latex to facilitate removal of thorns from the skin is common (Baslas and Agarwal, 1980).

The present study made an attempt to find out the antimicrobial activity of *Euphorbia hirta* against antibiotics resistent *Escherichia coli, Pseudomonas aureginosa, Proteus vulgaris* and *Staphylococcus aureus*.

CONCLUSION:

This study made between antibiotics and pathogen resistance. It's concluded that antibiotics provide the main basis for the therapy of microbial infections. But, overuse of antibiotics has become the major factor for the emergence and dissemination of multi-drug resistant strains of several groups of microorganisms. Thus, in the light of the evidence of rapid global spread of resistant clinical isolates, the need to find new antimicrobial agents will of paramount importance.

REFERENCES:

1. Aupert, G. and Carricajo, A., (2004). Monitoring of antibiotic treatment of patient with a severe bacterial infection. *Annales Francaises d'Anesthesie et de Reanimation* 23: 704-713.

2. Baslas, R., K. and Agarwal, R., (1980). Isolation and characterization of different constituents of *Euphorbia hirta* Linn, *Current Science* 49: 311-312.

3. Ernst, E., (2000). Herbal medicines: are they safe? *BMJ* 321: 395-396.

4. Hvidberg, H., Struve, C., Krogfelt, K.,A., Christensen, N., Rasmussen, S.,N., and Frimodt-Møller, N., (2000). Development of a long-term ascending urinary tract infection mouse model for antibiotic treatment studies. *Antimicrobial. Agents Chemotherapy* 44: 156-163.

5. Nostro, A., Germano, M.,P., (2000). Extraction methods and bio autography for evaluation of medicinal plants antimicrobial activity. *Lett. Appl. Microbiol*. 30: 379-385.

6. Upadhyay, B., Parveen, Dhaker, A.,K., Kumar, A., (2010). Ethnomedicinal and Ethnopharmaco-statistical studies of Eastern Rajasthan, India. Journal of Ethnopharmacology. 4: 64-86.