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STUDIES ON ANTIMICROBIAL ACTIVITY FROM FLOWERS OF IXORA COCCINEA

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ABSTRACT

The aim of the present study was to evaluate the phytochemical profile and anti microbial activity of flowers extract of Ixora coccinea Linn. Anti microbial activity refers to the process of killing or inhibiting the microbes causing diseases. Antimicrobial is a drug used to treat a microbial infection. Antimicrobial is a general term that refers to a group of drugs that includes antibiotics, anti-fungals, anti-protozoals and anti-virals. Antibiotics are one of the most important weapons in fighting bacterial infections. As the micro-organisms showing resistance to antibiotics there is a need to develop new antimicrobial compound. Plants are the richest bio-resources of drugs for traditional and modern system of medicine. Santan (Ixora coccinea, Linn., Dwarf red var.,) is one of the common ornamental plant found in the Philippines and in the west coast of India. The test substance used in the chloroform extract is flowers of Ixora coccinea Linn and were tested in Eschericia coli. Ixora coccinea flowers are commonly used in the treatment of diarrhoea, leucorrhoea, dysentery, skin problems and good for fever. It acts as a astringent, anti-diarrhoeal, anti-leucorrhoea and blood purifier. In accordance with previous reports, initiated the project work to obtain anti microbial activity from Ixora coccinea flowers. Finally we are planning to study the antimicrobial activity and preliminary phytochemical studies of the selected Ixora coccinea flower.

KEYWORDS: Ixora coccinea, Antimicrobial activity, phytochemical, astringent and Eschericia coli.

INTRODUCTION[1-2]

There are about 500 species are present in the genus ixora. A few numbers are in cultivation. There are number of cultivates variation in the flower color (yellow, pink) and plant size. Several cultivates are dwarfs under 3 feet. Other note wortly ornamental santans: santan puti(ixora finalysoniana wall), a shrub 2-4mm high, with white fragrant flowers and philipin santan(ixora phillipinensis merr), a shrub or small tree with white to pink flowers. It is useful for treatment of diseases i.e. diarrhea, leucorrhoea, skin problems, female white discharge and fever.

There has been priceless value for medicinal plants, herbs, species and herbal remedies since ages as the treatment is 100% natural without any side effects. Medicinal plants are the richest bio resources of drugs of the traditional systems of medicine, modern medicines, neutraceuticals, food supplements, folk medicine, pharmaceutical intermediate and chemical entities for synthetic drugs. They play a paramount role in the new era of medicine.

In allopathic medicine about 74% of this were discovered bye chemist attempting in identify the chemical constituents in plants. many more useful drugs will be found in the plant kingdom if the search for these entities is carried out in a logical and systematic manner. India has rich utilizable heritage of local medicinal role not only stored.

Plant Profile[3-4]

Ixora coccinea is a low growing tropical shrub notable for its bright flowers which are composed of many small blooms. It is having multiple branches. Every shrub can be growing about 4-6 feet. It is also having the capacity of reaching the height up to 12 feet. The i microbial activity, Ixora coccinea is a low growing tropical shrub notable for its bright flowers which are composed of many small blooms. It is having multiple branches. Every shrub can be growing about 4-6 feet. It is also having the capacity of reaching the height up to 12 feet. The glossy and lathery leaves are about 10 cm in long. And margins are carried in opposite pairs or whorled on stems. Phytochemical studies are can be indicated as the plant which is having phytochemical –loped, ursolic acid, olianolic acid, sitosterol, anthocyanine and glycosides. It is having many uses such as used in the treatment of diarrhea and leucorrhoea. It is used as astringent, anti-diarrhoeal, anti-leucorrhoea and blood purifier. And also used in the treatment of dysentery, used in the skin problems. It is good for fever and female white discharge.

Taxonomical Classification[5-6]

Kingdom	Plantae
Division	magnoliophyta
Class	magnoliopsida
Order	Rubiales
Family	Rubiaceae
Genus	Ixora
Species	Ixora coccinea

Fig: 1: Ixora coccinea.

Names In Different Languages[7]

Hindi Name **:** Ikora Kokeen

English Name **:** Ixora coccinea

Telugu Name **:** Nooru varahaalu

Tamil Name : Vedchi

Malayalam Name **:** Chethi

Bengali Name **:** Rangam

Geographical Distribution[8]

Ixora coccinea is a common flowering shrub native to Southern India and Sri Lanka and widely cultivated in Indonesia, Malaysia, the Philippines, Vietnam, Cambodia, Laos and Thiland. It has become one of the most popular flowering shrub in South Florida-USA gardens and landscapes.

It grows tropical areas with in medium annual rainfall in well drained soils.

Propogation[9-10]

Propogate Ixora coccinea from stem cuttings 5-8cm (2-3inch) long taken in spring. Trim each cutting immediately below a leaf, remove that leaf, remove that leaf and dip the cut end in hormone rooting powder. Plant the cutting in a 5-8cm (2-3inch) pot containing a moistened equal parts mixture of peat moss and coarse sand or perlite. Enclose the whole in a plastic bag or propogating case and stand it in bright filtered light at a temperature of 21-27ºC (70-81ºF). when the cutting has rooted probably in four to six weeks- uncover it gradually over a two or three weeks period in order to acclimatize the new plant to the less humid atmosphere of the room. When the new plant is fully uncovered, begin to water moderately (allowing a couple of centimeters (0.4-0.8 inch) or so of the potting mixture to dry out between watering again) and apply standard liquid fertilizer once every two weeks. About three months after the start of the propogation move the new plant into a slightly bigger pot of the recommended potting mixture for adult plants and treat it as mature.

Chemial Costituents[11]

There are several chemical constituents in different parts of plants …..

1. Leaves: Yields flavonols kaemferol and quercetin, proanthocyanidins and phenolic acids and ferulic acids.

2. Roots: Roots contains an aromatic acrid oil, tannin, fatty acids, and a white crystalline substance. Quercitin. Flowers yields tannins, lupeol, fatty acids, β-sitosterols, cycloartenol esters and flavonoids.

3. Whole plant: Plant yields lupeol, ursolic acid, oleanolic acid, sistosterol, rutin, lecocyanadin, anthocyanins, proanthocyanidins, glycosides of kaempferol and quercetin.

Phytochemical Constituents[12-13]

Phytoconstituents From Flowers: Alkaloids, Glycosides, proteins, Carbohydrates, saponins, tannins, phenols, and phytosterols were found significantly presence of in aqueous extract of Ixora coccinea flowers. Alkaloids, carbohydrates, flavanoids, proteins, slightly were presence. Saponins, phytosterols, phenols, Amino acids were absent.

Flowers: Bracteate**,** pedicellate, complete, hermaphrodite, actinomorphic, tetramerous, epigynous, large, showy, corolla, tube very long. Calyx made up of sepals-4, gamosepalous, green, valvate, very short in comparision to corolla. Corolla made up of 4 petals, gamopetalous, twisted, long, slender, corolla tube with abruptly expanded corolla limbs,

coloured. Androecium made up of stamens, polyandrous, epipetalous and alternipetalous, anthers sagitate, dithecous, dorsifixed, introrse.

Fruit: a berry.

Seeds: small, endospermic.

Inflorescence: corymbose cyme.

Leaves: ramal and cauline, simple, opposite decussate, stipulate, sessile, ovate to elliptical, entire, acute, unicostate reticulate ventilation, green.

Stem: herbaceous, aerial, erect, branched, cylindrical, differentiating into nodes and internodes, green.

MATERIALS AND METHODS[14]

Plant materials: The flowers of Ixora coccinea were collected from the premises of nalanda pharmacy college Guntur. Collection of flowers of Ixora coccinea. The collected flowers were examined carefully and damaged flowers were removed. Healthy flowers were shade dried at room temperature for about 7 days and powdered to get a coarse powder.

Preparation of extract: the powdered material was extracted by the solvents extraction using soxhlet apparatus. The solvents were selected according to the increasing order of polarity. Different solvents like chloroform, acetone, ethanol, methanol and water were used for extraction and the extracts were concentrated using vaccum evapourator.

Antimicrobial activity (cup-plate method): nutrient agar medium was prepared which is added with required micro organisms. The agar medium was poured into sterile petri plates. After the medium was solidified then the bores were prepared with the help of sterile borer. The bores was filled with different concentration of test and standard drugs. Finally zone of inhibition was observed.

Equipment and Instruments, Glassware Used[15]

Name	Model	Purpose
Weighing balance	ABRAON Digital balance HF-500	To weight the materials accurately.
Conical flask	-	Used for maceration
Separating funnel	-	To separate active constituents of powder.
Beakers	-	Storage purpose
Tripod stand	-	Support for separating funnel
Test tubes	-	Detection of various phytochemical constituents
Hot plate	VKSI laboratory hot	Obtaining crude plant product by

	plate	evaporating of solvent
Funnel	-	Filteration process
Hot air oven	Abron exports	Sterilization of glass rate
Autoclave	Abron exports	Sterilizing media
Incubator	Abron exports	Incubation of cultures
Inoculating loop	-	Inoculation of cultures into petriplates

Therapeutic Uses[15]

1. Used as sedative in the treatment of nausea, hiccups, and loss of appetite.
2. Used for dysenteric diarrhea and associated colic pains.
3. Flowers used for dysentery and leucorrhea.
4. In Bengal, roots are used for dysentery.
5. Flowers and bark used for blood-shot eyes.
6. Used as astringent, anti-diarrheal, anti leucorrhea blood purifier.
7. Used for thr skin problem good for leukarrhea female white discharge.
8. Used for the treatment of sores.
9. Used in the treatment of ulcers.
10. Used for the treatment of bronchitis cough.

CONCLUSION

The results reported in the present work showed evidence that the flowers of Ixora coccinea possessed potent anti-bacterial activity. Hence, it was apparent that the phyto-constituents synthesized by the plant was found to be effective antibacterial substance against a wide range of micro-organisms.

The plant can be further explored for its activity against wide spectrum of microbes and can be developed into a powerful antibiotic. Further studies are required to identify and isolate the actual chemical constituents that are present in the crude extracts of this plant which are responsible for antibacterial activity.

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