

INTERNATIONAL JOURNAL OF INSTITUTIONAL PHARMACY AND LIFE SCIENCES

Life Sciences

Research Article.....!!!

Received: 05-01-2015; Revised: 26-02-2015; Accepted: 01-03-2015

PHYTOCHEMICAL AND ANTIBACTERIAL EFFECT OF *QUISQUALIS INDICA* LINN

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Keywords:

Phytochemical,

Antimicrobial,

Quisqualis indica Linn

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ABSTRACT

The present paper deals with the phytochemical and antimicrobial screening of therapeutic importance from *Quisqualis indica* Linn an important medicinal plant. The study involves the preliminary screening of secondary metabolites from the Flower of *Quisqualis indica* Linn. The antibacterial activity was performed against a few pathogens *Staphylococcus aureus*, and *Bacillus cereus*. The generated data has provided the basis for its wide use as the therapeutic both in traditional and folk medicine.

INTRODUCTION

According to the World Health Organization (WHO) about 65–80% of the world's population in developing countries depends essentially on plants for their primary healthcare due to poverty and lack of access to modern medicine. The traditional systems of the medicine like Chinese, Ayurvedic, Unani and Sidha are very effective particularly in rural areas for the treatment of various ailments Sharma et al., (2010). The *Quisqualis indica* Linn. is one of the medicinal plant is used for the treatment of various disease, the decoctions of the root, seed or fruit can be used as anthelmintic to expel parasitic worms or for alleviating diarrhea. Fruit decoction can also be used for gargling. The fruits are also used to combat nephritis. Leaves can be used to relieve pain caused by fever. The roots are used to treat rheumatism. Flowers are used to relieve headache. Bussmann et al., (2007)

COLLECTION OF PLANT MATERIAL

The healthy plant samples of *Quisqualis indica* Linn was collected from Trichy. The collected plant materials were transported to the laboratory.

PREPARATION OF LEAF POWDER

The *Quisqualis indica* Linn was collected, washed and cut into small pieces and dried at room temperature for two weeks and made in to powder for further analysis.

EXTRACTION OF PLANT MATERIAL

Aqueous and alcoholic extracts were prepared according to the methodology of Indian Pharmacopoeia (Chopra, R.N 1966). The shade dried plant materials were subjected to pulverization to get coarse powder. The coarse powder material was subjected to Soxhlet extraction separately and successively with alcohol and distilled water. These extracts were concentrated to dryness in flash evaporator under reduced pressure and controlled temperature (40–50°C). The aqueous and alcohol extracts put in air tight containers stored in a refrigerator (Chulasuri, M et al., 1997).

ANTIMICROBIAL ACTIVITY

Micro organisms and culture media

The bacterial cultures such as, *Pseudomonas* sp were obtained from doctor diagnostic center, Trichy. The bacterial strains were maintained on nutrient agar medium. The antibacterial activity studied by agar well diffusion method.

RESULTS

TABLE 1: PRELIMINARY PHYTOCHEMICAL AQUEOUS LEAF EXTRACT OF *Quisqualis indica*. Linn

Phytochemical constituent	Alkaloids	Terpenoids	Steroids	Coumarins	Tannin	Flavonoids	Phenolic compounds	Sugar
Results	+	+	+	-	-	+	+	+

TABLE 2: ANTIBACTERIAL ACTIVITY OF AQUEOUS LEAF EXTRACT OF *QUISQUALIS INDICA* LINN. (L.) BY AGAR WELL DIFFUSION METHOD

PLANT EXTRACT	NAME OF THE ORGANISM	Zone of inhibition in mm		
	Concentration	20 μ l	40 μ l	60 μ l
<i>Quisqualis indica</i> Linn. (L.)	<i>E.coli</i>	16 \pm 0.4	15 \pm 0.2 7	12 \pm 0.2
	<i>Staphylococcus aureus</i>	14 \pm 0.4	13 \pm 0.2	18 \pm 1.5
	<i>Pseudomonas</i>	12 \pm 0.4	11 \pm 0.8	19 \pm 0.6

Table 1 shows the phytochemical profile of the *Quisqualis indica* Linn. leaf extracts. The leaf extract of *Quisqualis indica* Linn. contain phytochemical such as quinone, flavonoids, Tannin ,Phenolic , Saponin compound and cumarin, quinone and flvonoid. The Flavonoids are a group of phenolics that are found in varying amounts in foods and medicinal plants which have been shown to exert anti-allergic, anti-inflammatory (Yamamoto and Gaynor, 2006), anti-microbial and, antihepatotoxic activities (Robert et al., 2001). They alter enzyme activities affecting cell division, proliferation, platelet aggregation and immune response. Moreover, many studies have suggested that flavonoids exhibit chemoprevention and important anticancer activities (Pei et al., 2007). Table 3 shows the antibacterial activity of the *Quisqualis indica* Linn. (L.) leaf extract. The Aqueous extract was observed to be active against *E. coli*, *Pseudomonas* and *Staphylococcus aureus*. This activity suggests that the plant leaf extract possess remarkable therapeutic potential in the treatment of gastrointestinal and bronchial infection in man (Rogger et al., 1990).

CONCLUSION

The exploration of secondary metabolites from plant sources seems to be an excellent choice for the development of new antimicrobials. The aqueous extracts of *Quisqualis indica* Linn.(L.) have displayed good activity against both the gram positive and gram negative microorganisms displaying its potential in the development of new phytopharmaceuticals. As these drugs are plant based, they can be considered safe for human consumption.

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