



Volume: 2, Issue: 5, 81-82  
May 2015  
www.allsubjectjournal.com  
e-ISSN: 2349-4182  
p-ISSN: 2349-5979  
Impact Factor: 3.762

### C. Jayanthi

Assistant Professor  
PG and Research Department of  
Chemistry  
Government College for Women  
Kumbakonam, Tamil Nadu,  
India

### Dr. A John Merina

Principal, PG and Research  
Department of Chemistry  
Government College for Women  
Kumbakonam, Tamil Nadu,  
India

## Bactericidal and mosquito larvicidal activity of luteolin –7–o - glucoside from the flowers gutterda speciosa

C Jayanthi, Dr. A John Merina

### Abstract

The flavonoid from the flowers of *Gutterda Speciosa* was isolated and identified by UV, NMR and Paper Chromatography as Luteolin – 7- O – glucoside, then it was Subjected to bactericidal and Mosquito larvicidal activity.

**Keywords:** Luteolin 7 – 0-glucoside, *Gutterda Speciosa*, E. Coli, S. Pyogenes, Bactericidal, Larvicidal.

### Introduction

In nature excellent bio active component called flavonoid or Polyphenol is Present in various Parts of Plants which Plays important role in cure dangerous diseases <sup>[1]</sup>. The Present work was aimed to destroy the disease causing mosquito <sup>[2, 3]</sup> and micro organisms using flavonoid isolated from the flowers of *Gutterda Speciosa*

### Material and Methods

#### Isolation and Characterisation of flavonoid

The flavonoid Luteolin 7- 0 glucoside was isolated from the flowers of *Gutterda Speciosa* by Successive extraction of Solvents Viz Methanol, Benzene, Ether, Ethyl acetate. The Ethyl acetate fraction yielded yellow solids which is a sample <sup>[4, 5, 6]</sup>. It was characterized by C<sup>13</sup>, H<sup>1</sup> NMR, HSQC, UV and Paper chromatography studies.

#### Mosquito Control Activity

##### Sampling and Culture of Mosquito Larvae

*Anopheles stephensi* mosquito Larvae were collected from a stagnant water source located against to a residential area at Kumbakonam, Tamilnadu. From these Larvae un wanted large size larvae and Purpae were discarded, fourth instar larvae alone were segregated and Kept in Plastic containers and fed with mixture of biscuits and dried yeast Powder at the ratio 3:1 colonies were kept free from exposure to Pathogens, insecticides or repellents <sup>[2]</sup>.

#### Larvicidal Test

A stock Solution was Prepared dissolving a Known amount of Sample with water and stored in a refrigerator at 15°C. From the stock Solution 2ml, 4ml, 6ml, 8ml and 10ml was added to each sterilized Plastic cups, then it was diluted to 100ml with distilled water then 20 healthy 4<sup>th</sup> instar were introduced to each cups. Like wise 100ml water with 20 larvae was used as control then results were noted at 12, 24, 48, 60 and 72 hours interval.

#### Antimicrobial Activity

##### Disc Diffusion Method

Anti bacterial activity of the flavonoid was tested using disc diffusion method. The disc was Prepared by using what man No. 1 filter Paper. Then, the filter Paper discs 6mm diameter were Sterilized and soaked, in the different concentration of flavonoid. 10ml of sterilized agar medium for E. Coli and S. Pyogenes were poured in to the each sterile petri – dish. After solidification, the sterile cotton swab dipped in the culture of broth of E. Coli and S. Pyogenes. The entire agar surface of each plate was inoculated with this swab first in a horizontal direction and then in a vertical direction which ensure the distribution of organism over the agar surface. The filter paper disc soaked in plant extract was placed on the surface of the bacteria seeded agar plate and then the plate was incubated for 16 to 18 hours at 37°C. The antibacterial activity was recorded by measuring the width of the clear zone around each disc.

#### Results and Discussions

The isolated flavonoid was identified as Luteolin – 7 – 0 – glucoside.

### Corresponding Author:

#### C Jayanthi

Assistant Professor  
PG and Research Department of  
Chemistry  
Government College for Women  
Kumbakonam, Tamil Nadu,  
India

**Table 1:** Larvacidal activity of Luteolin – 7 -0 glucoside.

Sample MI	12 hrs	24 hrs	48 hrs	60 hrs	72 hrs
2	3	3	7	8	8
4	3	4	5	9	9
6	5	8	9	12	15
8	5	8	10	13	16
10	8	12	15	19	20
Control	-	-	-	-	-

Values are expressed as death of larvae out of 20.

**Table 2:** Antibacterial activity of Luteolin – 7 – 0 glucoside

Name of the Species	Known Standard	Concentration of flavonoid		
		10mg/ml	50mg/ml	100mg/ml
Escheria Coli	29nm	14	15	28
Strepto Coccus pyogenes	28nm	11	20	25

**Known Standard for E. Coli** Chloram Phenical  
**S. Pyogenes** Ceftriaxone

The present investigation revealed that the Luteolin – 7 -0 glucoside from *Gutterda speciosa* possess larvacidal activity against *A.Stephensi* larvae at higher exposure period 60 and 72 hours and at higher concentration. From the Pharmacological studies it was inferred that Luteolin – 7 – 0 glucoside has anti bacterial activity against gram negative organism *E.Coli* and gram positive organism *streptococcus pyogenes*.

### Conclusion

The naturally occurring flavonoid Luteolin – 7 -0 – glucoside has Larvacidal and antibacterial activities.

### Acknowledgement

The authors are sincerely thanks the Indian Institute of Science Bangalore, India, for providing  $^1\text{H}$  and  $^{13}\text{C}$  NMR Spectral data.

### References

1. Alice J, Sujeetha R. P Larvacidal activity of neem and palon rosa oil against a filarial vector, *Journal of Ecotonicology and Environmental Monitoring*, 2001;11(2):157-8.
2. Mark S, Fradin D. Mosquitoes and “Mosquito Repellents A Clinician’s Guide” in *Annals of internal Medicine*, 1998;128:931- 940.
3. AlMehmadi RM. Larvacidal histopathological and ultra structural studies of *Matrichariacchamomella* extracts against the rift valley fever mosquito. *Journal of Entomology*, 2011;8(1):63–72.
4. Markham KR. *Techniques of Flavonoid identification*, Acad. Press, London, 1982, 1-1.
5. Harbone B. *Phytochemical Methods* Chapman and Hall, London, 1973, 1.
6. Wagner H, *Comparative Phytochemistry*, Acad. Press, London, 1966, 309.
7. S.S. Gnanamanikam and J.W. Manifold, *Phytochemistry*, 1981;20:997.
8. Harbone B, Grayer RJ. *the Flavonoids: Advances in Research Since 198*, Chapman and Hall, London, 1993, 589.
9. Cao SG, Sim KY. *Phytochemistry*, 1998;47:1051.
10. *The Wealth of India* CSIR New Delhi, 1959;5:144.