


**INVITRO ANTI - BACTERIAL ACTIVITY OF FLOWERS OF NYMPHAEA ALBA****O.Sai Koushik, V.Himaja, P.Srinivasa Babu, Ramadoss Karthikeyan\***

Department of Pharmacognosy, Vignan Pharmacy College, Vadlamudi-522213. A.P.India.

<p><b>*For Correspondence:</b> Department of Pharmacognosy, Vignan Pharmacy College, Vadlamudi-522213. A.P.India.</p>	<p><b>ABSTRACT</b> Hydroalcoholic extract of the flowers of <i>Nymphaea alba</i> were investigated for antibacterial activity against <i>Bacillus subtilis</i>, <i>Staphylococcus aureus</i>, <i>Klebsiella pneumonia</i> and <i>Escherichia coli</i>. The hydroalcoholic extract showed significant broad spectrum of activity on gram positive and gram negative microorganisms against control.</p> <p><b>KEY WORDS:</b> <i>Nymphaea alba</i>, Flower, Hydro alcoholic extract, antibacterial activity.</p>
<p><b>Received: 14.04.2015</b> <b>Accepted: 22.06.2015</b></p>	
<p><b>Access this article online</b></p>	
<p><b>Website:</b> <a href="http://www.drugresearch.in">www.drugresearch.in</a></p>	
<p><b>Quick Response Code:</b> </p>	

**INTRODUCTION**

*Nymphaea alba* is a member of the family Nymphaeaceae. Traditionally *Nymphaea alba* commonly called as "European White Water lily, is an aquatic flowering plant of the family Nymphaeaceae, The family Nymphaeaceae consists of several important medicinal plants with wide range of pharmacological, biological activities and interesting phytochemical constituents. The family Nymphaeaceae consists of several important medicinal plants with wide range of pharmacological, biological activities and interesting phytochemical constituents. The present study aimed to authenticate the anti-bacterial activity of this species. These flowers are having significant antibacterial action [1-2].

**MATERIALS AND METHODS****2.1 Collection and preparation of plant material:****2.1.1Preparation of extracts**

The plant material was collected from the plant *Nymphaea alba*. Which are collected during the month of December at Sekuru, Guntur (Dist) of

Andhra Pradesh. Then it was authenticated by Dr SM.Khasim, professor, Department of Botany and Microbiology, Acharya Nagarjuna University, Nagarjuna nagar, Guntur. The shade dried flowers were powdered and extracted with soxhlet apparatus using hydro alcoholic (yield 5.8%). The samples were prepared by suspending the residues in DMSO for anti-bacterial study.

**2.1.2Antibacterial activity**

The antibacterial activities of these extract were tested against *Bacillus subtilis*, *Staphylococcus aureus*, *Klebsiella pneumonia* and *Escherichia coli*.The antibacterial sensitivity pattern for the isolates was studied by the disc diffusion method [3-6].

**3. Methodology**

Muller Hinton agar media was prepared and the plates were swabbed with 24 hrs cultures of respective bacteria grown in nutrient broth. Sterile discs of 6mmdiameter were impregnated with 25µleach extract separately. Blank disc impregnated with DMSO was used as negative control and discs of Gentamycin (30 µg/ml) as positive control. The plates were then incubated at 37°C for 24 hrs.

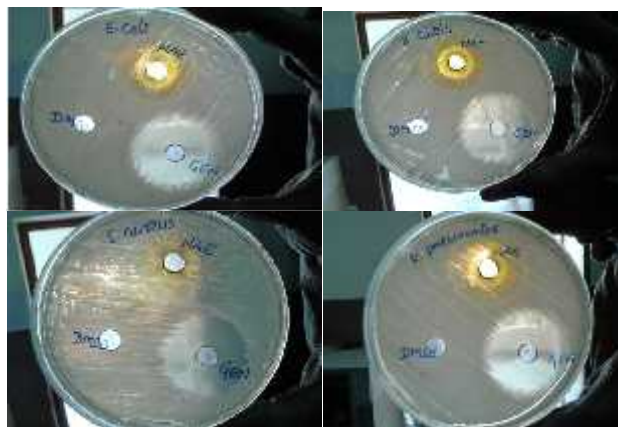
Inhibition was recorded by measuring the diameter of inhibition zone at the end of 24h.

## RESULT AND DISCUSSION

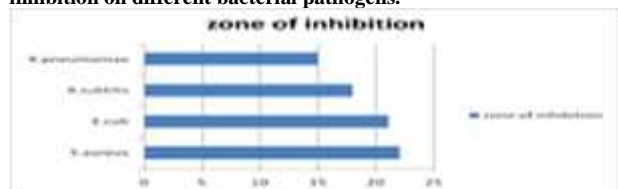
The results obtained in the study are depicted in Table 1 which shows the growth of inhibition produced by the flower extracts of *Nymphaea alba* on 4 species of bacteria. These activities can be referred based on their zone of inhibition. The leaf extracts of *Nymphaea alba* was found to be highly active against *staphylococcus aureus*, *Escherichia coli*, and *bacillus subtilis*. The results of the plant extract against various bacteria were in concordance with positive control (gentamycin). The comparative study of the antibacterial activity of the hydroalcoholic extract of *Nymphaea alba* along with negative and positive control revealed that it possesses good antibacterial potential and broad spectrum of antimicrobial activity.

**Table 1.** Zone of inhibition of Hydro alcoholic extract of *Nymphaea alba* against bacterial pathogens.

SNO	Name of the bacterial pathogens	DMS O* (negative control)	Hydroalcoholic extract (250 µg/ml)	Hydroalcoholic extract (500 µg/ml)	Gentamycin (positive control)
1	<i>Bacillus subtilis</i>	-	-	18	27
2	<i>Staphylococcus aureus</i>	-	-	22	30
3	<i>Escherichia coli</i>	-	-	21	29
4	<i>Klebsiella pneumoniae</i>	-	-	15	25



**Figure 1.** Hydroalcoholic extract of *N.alba* producing zone of inhibition on different bacterial pathogens.



**Figure 2.** Antibacterial activity of hydroalcoholic extract of *Nymphaea alba*.

## CONCLUSION

From the above study it is evident that the flowers of *N.alba* have significant anti-bacterial action and can be employed as an antibacterial agent. Further this study encourages finding the minimum inhibitory concentration (MIC) and to isolate the attributing compound for the action.

## ACKNOWLEDGEMENT

The authors are thankful to management of Vignan Pharmacy College for providing all the facilities to do such a small work.

## REFERENCES

- Thippeswamy S, Brijesh Mishra, Veerapur VP, Gourav Gupta. Anxiolytic activity of *Nymphaea alba* Linn. In mice as experimental models of anxiety Indian journal of pharmacology. 2011 : 43( 1), 50-55
- Prashanth KV, Chauhan NS, Padh H, Rajani M. Search for antibacterial antifungal agents from selected Indian medicinal plants. J Ethnopharmacol. 2006;107:182-8
- Rios JL Recio MC, Villar A. Screening methods for natural products with antimicrobial activity: A review of the literature. J Ethnopharmacol. 1988; 23:127-49.
- Bauer AW, Kirby WMM, Sherris JC, Turck M. Antibiotic susceptibility testing by standardized single disc method. Am J Clin Pathol. 1966; 36:493-6.
- Almagboul, A.Z.; Bashir, A.K.; Farouk, A.; Salih A.K.M. Antimicrobial activity of certain Sudanese plants used in folkloric medicine. Screening for antibacterial activity. *Fitoterapia* 56, 331-337, 1985
- Anesini, E.; Perez, C. Screening of plants used in Argentine folk medicine for antimicrobial activity. *J. Ethnopharmacol.* 39, 119-128, 1993.