ANTI-BACTERIAL ACTIVITY OF GLORIOSA SUPERBA

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ABSTRACT
To investigate the Antibacterial activity of Acetone extract of Gloriosa superba tuber on different human pathogens collected from ATCC, (Gram positive and Gram negative) by using agar gel well method. Antibacterial activity of all extracts from Gloriosa superba tuber were checked against Gram positive bacteria such as Staphylococcus aureus ATCC 25923, Bacillus subtilis MTCC 441; Gram negative bacteria such as Escherichia coli ATCC 25922, Pseudomonas aeruginosa ATCC 27853 were tested. Acetone extract of Gloriosa superba tuber showed more antagonistic effect towards the growth of pathogenic bacteria. Highest antagonistic effect showed on Escherichia coli and lowest effect on Bacillus subtilis.

KEYWORDS: Gloriosa superba, Bacillus subtilis, aureus, subtilis.

INTRODUCTION
Glory lily is considered as a rich source of colchicines and gloriosine(Trease et al). The flower has analgesic, antimicrobial, anti-inflammatory potential, antipoxviral potential, antithrombotic potential, larvicidal potential, enzyme inhibition potential, antitumor potential and also used in treatment of snake bite, skin disease, respiratory disorders (Alagesabooopathi, Rehana banu, Abhishek Mathur et al). Different parts of G. superba have wide variety of uses especially in traditional system of medicine. The use of traditional plants in the industrialised societies have been traced to the extraction and development of several drugs from these plants(Shrikumar et al.,2007). According to Nadkarni (1976) the root tubers are tonic, cholagogue, antiperiodic, alterative and purgative. The white flour prepared from its root tubers is given with honey in gonorrhoea and alone in leprosy, colic and intestinal worms (Dastur, 1962). All parts of the plant contain colchicines and related alkaloids and are therefore dangerously toxic if ingested, especially the tubers; contact with the leaves and stems can cause skin irritation. Various preparations of the plant are used in traditional
medicines for a variety of complaints in both Africa and India. Therefore, in present study, attempts have been made to evaluate the Antimicrobial efficacy of the medicinal plant Gloriosa superba L. (Kamna Bhatnagar et al.).

ESTIMATION OF ANTI MICROBIAL ACTIVITY

Preparation of crude extract: The material collected were first thoroughly washed with water and soaked in detergent to clean the surface load of microbes. These were then shade dried and coarsely powdered in mortar and pistil, and was filtered with fine muslin cloth. This fine powder of Gloriosa superba tubers (20g) were sequentially extracted with Isopropyl alcohol and Acetone at room temperature for 48 hrs. The extracts were filtered and concentrated under reduced pressure using rotary evaporator to get completely dried extracts. This was then dissolved in DMSO, dimethyl sulfoxide as a solvent.

To investigate the anti bacterial activity of Acetone extract of Gloriosa superba tuber on different human pathogens collected from ATCC, (Gram positive and Gram negative) by using agar gel well method. The present study was meant to characterize pharmacological potential of different extracts from tubers of this medicinal plant. Anti bacterial activity of all extracts from Gloriosa superba tuber were checked against Gram positive bacteria such as Staphylococcus aureus ATCC 25923, Bacillus subtilis MTCC 441; Gram negative bacteria such as Escherichia coli ATCC 25922, Pseudomonas aeruginosa ATCC 27853 were tested.

RESULTS

The leaves of Gloriosa superba were extracted with ethanol in Soxhlet assembly for 48 hrs and the percentage yield of each extract is presented in Table 1. The extracts were subjected to preliminary phytochemical analysis, the result of which revealed the antimicrobial activity in terms of zone of inhibition was shown in figures

<table>
<thead>
<tr>
<th>Name of microorganism</th>
<th>Bacillus subtilis</th>
<th>Pseudomonas aeruginosa</th>
<th>Escherichia coli</th>
<th>Staphylococcus aureus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aztreonam</td>
<td>24.5mm</td>
<td>30.5mm</td>
<td>20mm</td>
<td>20.5mm</td>
</tr>
<tr>
<td>Gloriosa superba tuber</td>
<td>26.5mm</td>
<td>29.5mm</td>
<td>42.5mm</td>
<td>35.5mm</td>
</tr>
</tbody>
</table>
CONCLUSION
The present article successfully evaluated the role of Gloriosa superba for its antibacterial activity. It was already reported that the phytochemicals have an excellent ability to act against microorganisms. This could be due to the active chemicals which are present in the Gloriosa superba making it a potential antibacterial activity. Further, upon proper clinical and pharmacological studies, Gloriosa superba could be one the suitable drugs for many diseases.

REFERENCES


