INVITRO ANTIBACTERIAL ACTIVITY OF SARGASSUM WIGHTII
FROM MANDAPAM COAST, TAMIL NADU, INDIA

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ABSTRACT
The antibacterial activity of Sargassum weightti was screened against human bacterial pathogens like bacillus cereus, Klebsiella pneumonia, Streptococcus pyogenes, Vibrio cholerae, E. coli, Proteus vulgaris and Salmonella typhi. The maximum activity was recorded from the extract of Sargassum weightti against K. pneumoniae and minimum activity against streptococcus pyogenes.

KEY WORDS
Antibacterial activity, Mandapam coast, human bacterial pathogens.

INTRODUCTION
Seaweeds are highly living resources which are also used as food, feed and fertilizer in many countries in the world. Seaweeds are having low calorie food but highly contains vitamins, minerals and dietary fibres.then they have more potential of protein, carbohydrates and fatty acids also(1).recent research implies that polysaccharides like inulin, oligofructose, galactooligosaccharides and lactilose can also act as potent prebiotic compounds against pathogenic microbes in animals and humans. Seaweeds are hold within various secondary metabolites like mycotoxins, alkaloids, phenolic compounds, food grade pigments and plant growth factors(2) various studis from across the world have demonstrated that marine algae are also posses a number of biological activities beneficial for human health including antimicrobial, cytotoxic, antimitotic, anticancer and antimutagenic activities(3-7).

MATERIALS AND METHODS
Collection of samples
Sargassum weightti collected from the Gulf of Mannar region of Mandapam coast (Lat 09° 17`N, Long 79° 07`E), Tamil Nadu, south-east coast of India. The collected sea weed Sargassum weightti were initially washed with sea water to remove the macroscopic epiphytes, sand particles and other extraneous matter and then rinsed in distilled water. This was then air dried in shady place and ground to fine powder which was used for further analysis.

Preparation of Extract
20 gm powdered Sargassum weightti were soaked in 50 ml of methanol over the 48 hours and then filtered by Whatmann filter paper No 1 along with 2 gm sodium sulfate to remove the sediments and traces of water in the filtrate. Then the filtrate is concentrated to 1 ml by bubbling nitrogen gas into the solution (8).

Antimicrobial assay
Antimicrobial activity was carried out using Kirby-Bauer’s disc diffusion method. Sterile Hi-Sensitivity agar was prepared and poured into Petri dishes. The depth of the medium should be approximately 4mm.After solidification the plates were dried for 30 mins to remove excess of moisture from agar surface. The test compound (0.1 ml) was introduced into the disc (0.7 cm) and then it is allowed to dry. The disc was completely saturated with the test compound by
this method. The disc was then introduced into the upper layer of the medium at least 25mm away from the edge. The disc was then pressed lightly on the surface of the medium. The plates were incubated at 37°C for 48-72 hours for bacteria (9).

Minimum Inhibitory Concentration
Measure the diameter of the Zone of inhibition (area wherein there is no growth around the discs) using the millimeter of a ruler. MIC is the lowest concentration of antibiotics that exhibit the zone of inhibition of the assay plates. Record the results and interpret based on the standard as given below.

<table>
<thead>
<tr>
<th>S. No</th>
<th>Organisms</th>
<th>A</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><em>Bacillus cereus</em></td>
<td>22</td>
<td>15</td>
</tr>
<tr>
<td>2</td>
<td><em>Klebsiella pneumonia</em></td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>3</td>
<td><em>Streptococcus pyogenes</em></td>
<td>15</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td><em>Vibrio cholerae</em></td>
<td>21</td>
<td>17</td>
</tr>
<tr>
<td>5</td>
<td><em>E.coli</em></td>
<td>16</td>
<td>13</td>
</tr>
<tr>
<td>6</td>
<td><em>Proteus vulgaris</em></td>
<td>17</td>
<td>16</td>
</tr>
<tr>
<td>7</td>
<td><em>Salmonella typhi</em></td>
<td>19</td>
<td>18</td>
</tr>
</tbody>
</table>

A-Antibiotic,  S-Sample (Values in mm)

RESULTS AND DISCUSSION
Methanol extract of *Sargassum weightti* was highly provided antibacterial activities for many bacteria were tested almost 70% with positive control antibiotics using in the current pharmaceutical drugs. the zone of inhibition were found to be 19 mm for K.pneumoniae, 12mm for *S.pyogens*, 13mm for *E.coli*, 15mm for *b.cereus*, 16mm for *P.vulgaris* and 18 mm for *S.typhi*.

CONCLUSION
In the present study have clearly shown that the methanol extract of *Sargassum weightti* had highly effective antibacterial activity against *Klebsiella pneumonia, Salmonella typhi, Proteus vulgaris* and *E.coli* followed by lesser activity against *Streptococcus pyogenes, Vibrio cholerae* and *Bacillus cereus*.

REFERENCES


6. X.Q.XuV.H. Tran, G.Kraft and J.Beardall, Phytochemistry, 48, 1335919980.


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