Antibacterial activity of rice bran oil

Dey Arpan, Jain Praveen and Singh Ajay*
G.D Rungta College of Science and Technology, Kohka, Bhilai, (C.G.), India.

Abstract
Edible oils are widely used. These edible oils have unimaginable medicinal and Pharmaceuticals properties. The oils possessing antimicrobial activity can be employed against human pathogens. Investigations into the antimicrobial activities, mode of action and potential uses of oils have regained momentum. There appears to be a revival in the use of traditional approaches for protecting livestock and food substances from pathogens, pest and spoilage in developing countries. The aim of the present investigation is to assess the anti-bacterial activity of the rice bran oil, so that the intake of rice bran oil might promote human health by preventing bacterial pathogenesis. The bacterial cultures are supplied with rice bran oil (commercially available in the market) and culture conditions are maintained as the normal protocol. The studies reveal antibacterial effect. And inhibition is of permanent nature as petridishes are not found to be infected with any other colony for 5 continuous days.

Keywords: Antibacterial activity, rice bran oil.

INTRODUCTION

Anti-fungal and anti-bacterial activity of Coconut and saffola oil were proved as a good microbial inhibitors.(Uma Maheshwari et al 2007).The refined oil was found to show good to moderate activity against disease causing bacteria viz., Shigella dysenteria, Staphylococcus aureus and Salmonella typhi (Majid et al 2004).It has been suggested that selected plant essential oils are proved to be having good antibacterial activity against E.coli.(Burt et al 2003).Essential oils of plant containing ketones and alcohols have been proved to be good microbial inhibitors(Hethelyi et al 1989;Gopal et al. 1990). The wide availability of rice bran oil inspires us to test the competitive antibacterial activity of the oil against E.Coli, Pseudomonas aeruginosa and Staphylococcus aureus.

METARIALS & METHODS

Anti-bacterial activity was tested against randomly selected strains such as E.coli, Pseudomonas aeruginosa, Staphylococcus aureus, isolated from RUNGTA Dental College, Bhilai, Chhattisgarh. The commercial rice bran oil was obtained from market(Vidya shree refined oil packed in pouch). To analyse the antibacterial activity of the oil, the well diffusion method was used (Bauer et al 1966). Each organism was maintained in a respective culture medium and recovered for testing by sub culturing on a fresh media. The nutrient agar medium was sterilized and 15 ml of media was poured into a sterilized petriplate. The agar was allowed to be solidified for 15-20 min. With the help of puncher syringe well was formed on solidified agar then oil was poured in well of the solidified agar containing petriplates. Petriplates were later incubated at 37°C for 24 hours. The zone of clearance (circle of growth inhibition) was measured in millimeters and standard antibiotic preparation of Gentamycin was used as reference Standard.

RESULTS AND DISCUSSION

The activity of the components of oil is expected to be related to the antibacterial nature as it inhibits the growth of bacterium in vitro. And inhibition is of permanent nature as petridishes were not found to be infected with any other colony for 5 continuous days. The results of antibacterial activity of rice bran oil are summarized in the following table.

Table 1. Anti- bacterial activity of edible oil (Rice bran oil)

<table>
<thead>
<tr>
<th>S.NO.</th>
<th>Bacteria</th>
<th>Gentamycin (µg)</th>
<th>Average Diameter of the inhibition Zone(mm) (zone of clearance) by Rice Bran Oil</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>E.Coli</td>
<td>20mm</td>
<td>25mm</td>
</tr>
<tr>
<td>A2</td>
<td>Pseudomonas aeruginosa</td>
<td>22mm</td>
<td>18mm</td>
</tr>
<tr>
<td>A3</td>
<td>Staphylococcus aureus</td>
<td>12mm</td>
<td>Nil</td>
</tr>
</tbody>
</table>

Gram (-): E. coli, Pseudomonas aeruginosa,
Gram (+): Staphylococcus aureus
Gentamycin – The reference standard antibiotic.

*Corresponding Author

Singh Ajay
G.D Rungta College of Science and Technology, Kohka, Bhilai, (C.G.), India.

Email: singhajay@gmail.com
Photographs showing Zone of clearance

Fig. A1 (Inhibition zone against E.Coli.)

Fig. A2 (Inhibition zone against Pseudomonas aeruginosa)

Fig. A3 (Inhibition zone against Staphylococcus aureus.)

REFERENCES


