Anti-bacterial and anti-biofilm activity of Enterococcus spp against Staphylococcus aureus

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INTRODUCTION

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**Lactic acid bacteria**

- An extension of the shelf life of food
- Control the growth of pathogenic bacteria

**Enterococcus spp**

- Probiotics
- Biofilms

Milk
INTRODUCTION

Biotic

Minéral and vegetal surfaces

Abiotic

Animal surfaces

Biofilms

Industriel surfaces

Medical surfaces
Materials and Methods

Strains

Camel’s milk

Ewe’s milk

Jben of goat
1 spotted an overnight culture of each producing strain onto agar plates
2 Incubation for approximately 24h
3 the plates were overlaid with 6 ml of soft agar medium (0.75% agar)
4 Incubation
5 checking for clear zones around spots
Materials and Methods

- 10 ml of MRS
- 10 ml of Staphylococcus aureus suspension
- 10 ml bacterial suspension
- 10 ml Staphylococcus aureus suspension
## Results and discussion

**Antibacterial activity of Enterococcus spp**

The antibacterial spectrum of the twelve *Enterococcus* spp strains by agar spot is shown below:

<table>
<thead>
<tr>
<th>Strains</th>
<th><em>Staphylococcus aureus</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>+++</td>
</tr>
<tr>
<td>A7</td>
<td>+++</td>
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<tr>
<td>A8</td>
<td>+++</td>
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<td>A9</td>
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<td>A15</td>
<td>+++</td>
</tr>
<tr>
<td>F58</td>
<td>++</td>
</tr>
<tr>
<td>F420</td>
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</tbody>
</table>

Sensitivity was expressed as the size of inhibition zones: (-): <1 mm; (+): 1-10; (++) : 10-20 mm; (+++): >20 mm.
Results and discussion

_Anti-adherence of Staphylococcus aureus using Enterococcus spp biofilm_

_Inhibition of adhesion of Staphylococcus aureus on AISI 316L by Enterococcus spp biofilm._
Conclusion

Dairy product contamination was resulting in biofilm formed on processing equipment, and hence it’s essential to prevent them than remove them. For that our study focused on the exclusion of pathogens by Enterococcus spp. The results showed that Enterococcus spp were able to inhibit pathogenic bacteria in planktonic and also to reduce their adhesion on AISI 316L. In this regard, Enterococcus spp in the industry could be applied either as potential probiotics or as a part of conditioning surfaces for bio-control of food spoilage.
Thank You

Get in Touch
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