DRUG INCORPORATION OF ACRYLIC RESINS MICROBIOLOGICAL AND RELEASE STUDIES

OBJECTIVES

Evaluate the drug release and antifungal activity against Candida albicans of acrylic reline resins loaded with chlorhexidine.

MATERIALS AND METHODS

**ACRYLIC RESINS**

- Kooliner (K)
- Ufi Gel Hard (U)
- Probase Cold (PC)

**PREPARATION OF SPECIMENS**

- CHX Diacetate: 0%, 1%, 2.5%, 5%, 7.5% e 10% (w/w)

**DRUG RELEASE**

- 12 x 6 mm
- Releasing solutions: Artificial saliva

**ANTIFUNGAL ACTIVITY**

**EXPERIMENTAL GROUPS**

<table>
<thead>
<tr>
<th>CHX %</th>
<th>Experimental Group</th>
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</thead>
<tbody>
<tr>
<td>0%</td>
<td>Resin with 0% CHX</td>
</tr>
<tr>
<td>1%</td>
<td>Resin with 1% CHX</td>
</tr>
<tr>
<td>2.5%</td>
<td>Resin with 2.5% CHX</td>
</tr>
<tr>
<td>5%</td>
<td>Resin with 5% CHX</td>
</tr>
<tr>
<td>7.5%</td>
<td>Resin with 7.5% CHX</td>
</tr>
<tr>
<td>10%</td>
<td>Resin with 10% CHX</td>
</tr>
</tbody>
</table>

**POSITIVE CONTROLS**

- CHX – Paper disk with CHX
- F – Paper disk with Fusarium oxysporum B

**RESULTS**

**DRUG RELEASE**

- For all CHX % and for the majority of time intervals, Ufi Gel Hard released the highest amount of CHX, followed by Kooliner and Probase Cold.

**ANTIFUNGAL ACTIVITY**

- No group with 1% CHX presented inhibition zone, and only the Kooliner group presented inhibition zone in specimens with 2.5% CHX (8.95 ± 0.97 mm).

- Probase Cold presented lower values than Ufi Gel Hard (p = 0.017).

- There was a tendency to increase the diameter of inhibition zone with the increase of the percentage of CHX incorporated in the material (p = 0.198).

**CONCLUSION**

- Different acrylic reline resins compositions and different CHX loading percentages affect the drug release.

- The incorporation of CHX into acrylic resins seems to have an influence on the microbiological activity against this strain of C. albicans.

- U appears to be the resin which releases more CHX and which, at 5% CHX concentration, already exhibits antifungal activity.

- CHX delivery systems based on acrylic reline resins are a potential approach in the treatment of denture stomatitis.

**REFERENCES**


**ACKNOWLEDGEMENTS**

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