Effect of Different Types of Disinfectants on Udder Health and Milk Produced From Dairy Cows

A.K.H. AL-Hubaety and H.M.R. Kassab Baishi
Department of animal resources – College of Agriculture and Forestry - University of Mosul

Abstract

The current study was carried out on six cross-breed lactating cows, which belong to the animal farm of agriculture and Forestry College / university of Mosul. The aim of the research was to evaluate the disinfectant efficiency on udder and teat preparation using two types of antiseptics, Hibitane and potassium permanganate, in a concentration of 0.75%, 0.375% and 0.15% for the first one and 0.02% and 0.04% for the second one.

Results indicated that Hibitane was the most effective in reducing the total bacterial count of the udder and teats skin and in milk by 99.1% and 83.6% at a concentration of 0.75%, while the other two concentrations (0.375% and 0.15%) were effective in reducing the total bacterial count of the udder and teats skin by 93.7% and 87.2% respectively. In milk, the percentage of potassium permanganate (0.04%) was more effective than the lower concentration (0.02%) and reduced the bacterial count by 63.1% and 55.6% in milk respectively. However, a total somatic cell count of the produced milk of the tested cows was 2.9-3.9 X 10^4 cells/ml, which is within the limits of normal somatic cell count.

KeyWords:
rocket salad, blood plasma, laying breeder

Correspondence:
A.K.H. AL-Hubaety
Department of Animal Resource, College of Agriculture, University of Mosul
Email: dr_allhubaety@yahoo.com
The growth of the bacterial colonies in the peptone water was assessed using an automatic colony counter (Himedia Ltd). The colonies were counted and expressed as colony-forming units (CFU).

The results indicated that the highest CFU counts were obtained from the samples of milk from the control group, followed by the samples from the treatment group. The CFU counts were significantly higher in the milk samples collected from the treated group compared to the control group. This suggests that the treatment had a positive effect on reducing the bacterial load in the milk samples.

In conclusion, the treatment with probiotics was effective in reducing the bacterial load in the milk samples, which could have implications for improving the quality and safety of the milk.

References:
The microscopic total leukocytic count (1986 Coles) in this study was calculated as follows: for each sample, the number of white blood cells (WBCs) was counted under a microscope, and the results were expressed as WBCs per 10^6 cells. The results showed that the WBC count was 30.555555 x 10^6 cells in the control group and 30.555555 x 10^6 cells in the experimental group.

**Table: Microbial Counts**

<table>
<thead>
<tr>
<th>CFU/ml</th>
<th>1/6cm²</th>
<th>1/2cm²</th>
<th>1/cm²</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.58</td>
<td>6.88</td>
<td>4.27</td>
<td>1.51</td>
</tr>
<tr>
<td>9.58</td>
<td>6.88</td>
<td>4.27</td>
<td>1.51</td>
</tr>
</tbody>
</table>

The results showed that the microbial counts were lower in the experimental group compared to the control group. The differences were statistically significant.

**Discussion**

The results of this study indicated that the treatment with the experimental group resulted in a decrease in microbial counts compared to the control group. This suggests that the treatment is effective in reducing microbial counts. Further studies are needed to investigate the mechanism of action of the treatment.
جدول (4) العدد الكلي للجراثيم الحية لعينات الحليب قبل المعاملة وبعد العد suspensions CFU/µL

<table>
<thead>
<tr>
<th>التركيز</th>
<th>CFU/µL</th>
<th>CFU/µL</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.15</td>
<td>24×10^3</td>
<td>69×10^3</td>
</tr>
<tr>
<td>0.375</td>
<td>12×10^3</td>
<td>45×10^3</td>
</tr>
<tr>
<td>0.75</td>
<td>10×10^3</td>
<td>61×10^3</td>
</tr>
</tbody>
</table>

كانت نتيجة العد الجراثيمي لعينة الحليب قبل المعاملة بمظهر برممكات البوناتيوم يتركز 50.02% في 10^3×10^2 أما بعد المعاملة فكانت 39.04% من مظهر برممكات البوناتيوم. فكانت النتيجة بعد المعاملة 10^3×10^2 في حين كانت قبل المعاملة 4×10^2.

جدول (5) العدد الكلي للجراثيم الحية لمسحات الضرع قبل المعاملة وبعد تعريض برممكات البوناتيوم CFU/16مسح

<table>
<thead>
<tr>
<th>التركيز</th>
<th>CFU/16مسح</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.04</td>
<td>9×10^2</td>
</tr>
<tr>
<td>0.02</td>
<td>14×10^2</td>
</tr>
</tbody>
</table>

جدول (6) العدد الكلي للجراثيم الحية لعينات الحليب قبل المعاملة وبعد تعريض برممكات البوناتيوم CFU/µL لعينات الحليب/1مل

<table>
<thead>
<tr>
<th>التركيز</th>
<th>CFU/µL</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.04</td>
<td>35×10^2</td>
</tr>
<tr>
<td>0.02</td>
<td>39×10^2</td>
</tr>
</tbody>
</table>

كانت النسبة المئوية لملعقة أعداد الجراثيم مختلفة باستخدام مظهر برممكات البوناتيوم بتكرار (0.04%) كانت 80.8%, أما مظهر برممكات البوناتيوم بتكرار (0.02%) فكانت النسبة 73.7% أما بعملية الغسل بالماء فكانت النسبة 41.6%.

(1) يوضح هذه النسب:
Chemical and Microbiological Characteristics of Raw Milk Produced by Matthews (1992).


