Polyhydroxy Acids (PHAs) Provide Conditioning Effects to Skin Without Increasing Sensitivity to UV Light

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Introduction

Polyhydroxy Acids (PHAs) are natural derivatives of lactic acid, occurring in many fruits, vegetables, and grains. Their hydrophilic nature allows them to penetrate the skin and enhance skin hydration. Polygluconic acid (gluconolactone) is typically the base for these products. PHAs are considered to provide conditioning effects to skin without increasing sensitivity to UV light.

Objective

To determine if PHAs provide conditioning effects to skin without increasing sensitivity to UV light.

Methods

Two separate studies utilizing a complete block design. Products were blinded and randomly assigned to test sites. Test materials:

- PHA: 8% gluconolactone cream, pH 4.2
- PHA: 8% glucoheptonolactone cream, pH 3.8

Test Materials:

- Post-laser purpura concealed with PHA
- 0.1% Tretinoin Gel
- Cleanser

Results - MEDs

<table>
<thead>
<tr>
<th>Test Product</th>
<th>MED</th>
<th>Statistical Significance Compared to Untreated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Untreated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHA 1</td>
<td>10</td>
<td>*Significant decrease in MED compared to Untreated, p&lt;0.05</td>
</tr>
<tr>
<td>PHA 2</td>
<td>11</td>
<td></td>
</tr>
</tbody>
</table>

Results - SBCs

<table>
<thead>
<tr>
<th>Test Product</th>
<th>SBCs</th>
<th>Statistical Significance Compared to Untreated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Untreated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHA 1</td>
<td>200</td>
<td>*Significant improvement in SBCs compared to Untreated, p&lt;0.05</td>
</tr>
<tr>
<td>PHA 2</td>
<td>210</td>
<td></td>
</tr>
</tbody>
</table>

Conclusions

- PHAs (gluconolactone and glucoheptonolactone) did not significantly change the MED compared to Untreated.
- These findings are consistent with previous studies conducted by CTFA and FDA.
- Use of the PHA regimen did not adversely affect tretinoin efficacy in treating acne.
- This study supports the use of PHAs in combination with tretinoin for adult acne.

Self Assessment

- Self Assessment - Improvement of Condition with PHA
- Self Assessment - Compatibility of PHA Products with Tretinoin

References

3. Neel von Den Stock PH, Borkenstein MR. The effects of two hydroxy acids in concentrations of 10% and 20% on 
4. One person.

Summary

The Polyhydroxy Acids (PHAs) have been shown to provide conditioning effects to skin without increasing sensitivity to UV light. This study demonstrates the compatibility of PHAs in combination with tretinoin for the treatment of acne. The results suggest that PHAs can be used safely in conjunction with tretinoin, providing a gentle and effective approach to acne management.

Self Assessment

- Self Assessment - Improvement of Condition with PHA
- Self Assessment - Compatibility of PHA Products with Tretinoin

References

3. Neel von Den Stock PH, Borkenstein MR. The effects of two hydroxy acids in concentrations of 10% and 20% on 
4. One person.

Conclusion

This study demonstrates the compatibility and efficacy of PHAs in combination with tretinoin, providing a safe and effective treatment option for acne management.