Mometasone furoate, a synthetic 16 alpha-methyl analogue of beclomethasone, is classified as a class 3 glucocorticoid for dermatological use. It is an anti-inflammatory and anti-pruritic corticosteroid. It is though a very useful molecule in the atopic dermatitis treatment.

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**Introduction**

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**Aim**

The present study was conducted in order to investigate the effect of different polymers on the release rates and fluxes from gels containing 0.1% (w/w) mometasone furoate (MF), through human epidermis.

**Conclusions**

The fluxes obtained from the formulations were significant different.

These results suggest that the corticosteroid is polymer dependent concerning the crystallization of mometasone furoate.

**References**


**Results and Discussion**

**In vitro studies**

The diffusion profiles through human epidermis obtained for MF were not similar for both HPMC and HPC gels (figure 1); the flux of the HPC gel was higher, as well as the permeability coefficients.

Analysis of variance (ANOVA) showed that significant differences were found among the two formulations (p<0.05 and F_{exp}>F_{crit}).

<table>
<thead>
<tr>
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<th>HPC Gel</th>
<th>HPMC Gel</th>
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<tbody>
<tr>
<td>Flux (µg/cm²/h)</td>
<td>0,066</td>
<td>0,046</td>
</tr>
<tr>
<td>Permeability coefficients (cm/h)</td>
<td>7,11*10⁻⁵</td>
<td>5,78*10⁻⁵</td>
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**Cristalisation**

Crystals were observed, macroscopically, 2 weeks after the preparation of HPC gel but no crystals appeared in the presence of HPMC. The mechanism of nucleation retardation by the polymers is explained in terms of association of MF with the polymer through hydrogen bonding. The growth may be inhibited by the hydrodynamic boundary layer, in which the polymers accumulate as well as by the adsorption of the polymer onto the crystal surface.

**Figures**

- Figure 1: Amount of mometasone furoate permeated (n=6).
- Figure 2: Crystals observed in HPC Gel, (Magnification: 400x).
- Figure 3: HPMC Gel, (Magnification: 400x).