

## Studies on mucoadhesive maleimide-functionalized hydroxyethyl cellulose (HEC)

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**Background:** This study aims to synthesize maleimide-functionalized HEC and evaluate its mucoadhesive properties.

**Methods:** The synthesis involved a series of experiments to react HEC with varying amounts of N-(4-bromophenyl) maleimide in 50:50 deionized water and DMF mixture in the presence of triethylamine. The successful synthesis was confirmed using proton nuclear magnetic resonance and Fourier transformed infrared spectroscopies. Quantification of maleimide was performed using inversed Ellman's assay. The mucoadhesive properties of these HEC derivatives towards freshly excised buccal mucosa were assessed using a tensile test.

**Results:** The results revealed that the maleimide-functionalized HEC demonstrated superior mucoadhesive properties compared to parent HEC.

**Conclusions:** The data collected support the possibility of this modified polymer application as an excipient for transmucosal drug delivery.