

# EOSIN WITH ALLANTOIN MIXTURE FOR THE TREATMENT OF PERIOSTOMAL ULCERS. A STABILITY STUDY

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## Background

It has been recently reported in the literature the use of topical 2% aqueous eosin in the therapeutic approach of peristomal dermatitis with varying degrees of injury, but the presence of peristomal ulcer is difficult to cure with eosin. Allantoin has several beneficial effects as an active agent promoting cell proliferation and wound healing. No physical or chemical stability study has been conducted to date in order to check the conditions and maximum storage time in which a mixture of eosin and allantoin could be safely kept.

## Purpose

To evaluate the stability of an eosin and allantoin mixture used in the treatment of peristomal ulcer patients by Proton Nuclear Magnetic Resonance (<sup>1</sup>H-NMR) spectroscopy.

## Material and methods

Aqueous eosin and allantoin were prepared to a final concentration of 2%. The mixtures were packed and stored in opaque glass bottles. Bottles were stored at 23 °C for a total period of 14 days in a chamber with digitally controlled temperature. The physical parameters monitored were, clearness, color and the formation of particulate matter. The pH variation was also determined. Chemical stability was determined by <sup>1</sup>H-NMR spectroscopy.

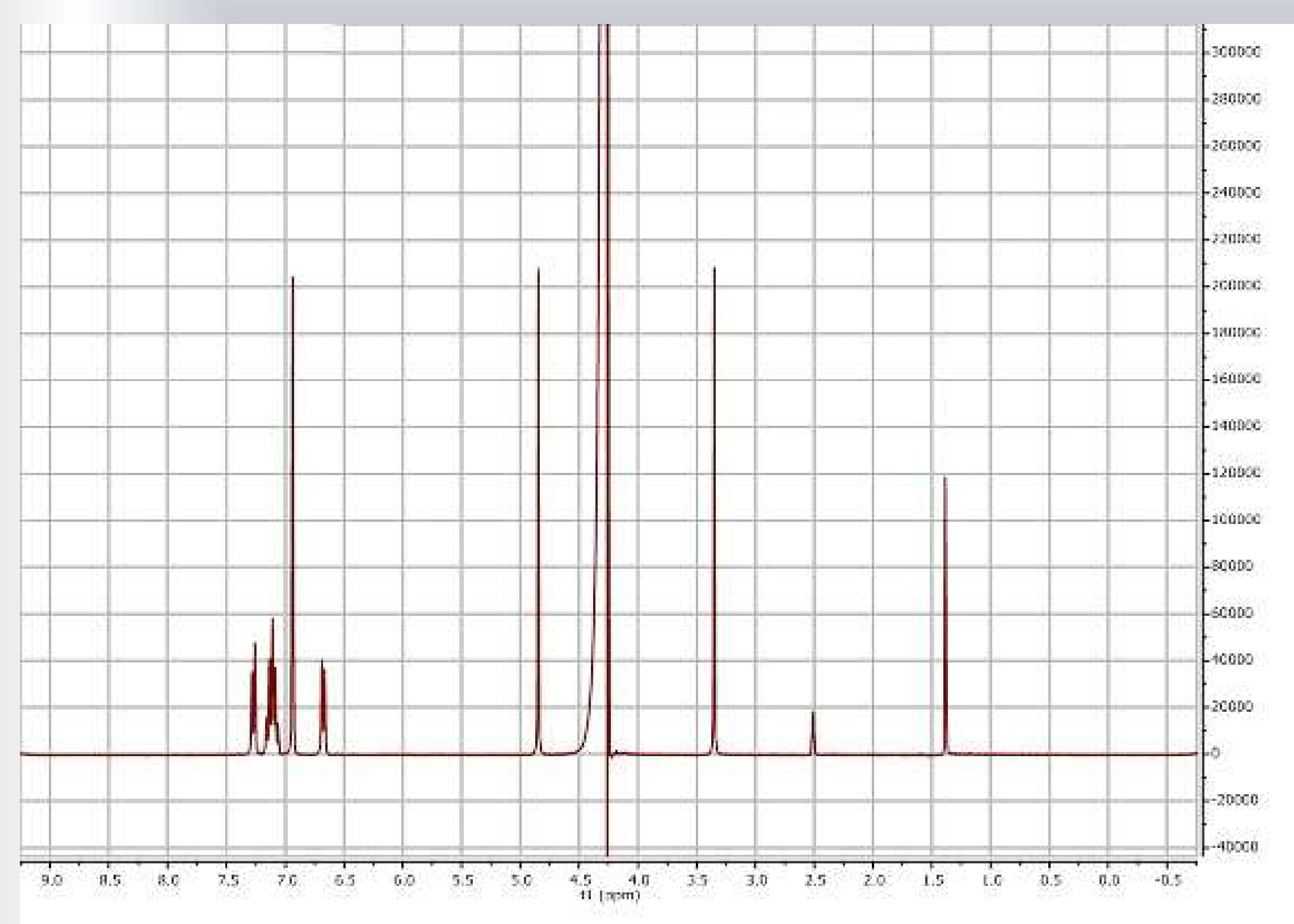
The NMR spectra of the reference compounds were acquired. Spectroscopical signals were interpreted and assigned to the chemical structure of eosin and allantoin, and then consecutive spectra were acquired at days 1 and 14. Signals obtained in these experiments were compared with those of the reference compound.

All spectra were acquired using a Bruker Avance DRX 300 MHz<sup>®</sup> spectrometer equipped with a 5 mm singleaxis z-gradient quattro nucleus probe (Bruker Biospin GmbH, Rheinstetten, Germany).

## Results

At day 1, the clear and colorless solution remained, a precipitate was formed and the pH varied from 7,2 to 6,5.

<sup>1</sup>H-NMR signals identical to those of the reference compounds were observed. However, some by-product signals were observed in the next check at day 2.



## Conclusions

An aqueous 2% eosin and allantoin mixture preserved in opaque glass bottles under the described conditions was not stable for a period of time greater than one day. This observations makes this mixture unsuitable as a therapeutic alternative for the treatment of peristomal ulcer patients.