STUDY ON THE STABILITY OF CHLORAL HYDRATE UNITARY DOSAGE FORMS FOR CLINICAL USE

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Purpose
To evaluate stability of unitary dosage forms of 10% (w/V) chloral hydrate (CH) (2,2,2-trichloro-1,1-ethandiol) syrup and rectal solutions, used as hypnotic-sedative in pediatrics to perform safety and successfully important diagnostic and therapeutic procedures, whose common characteristic is the necessity of anxiolysis, immobility and amnesia.

Methods
Two batches of CH 10% (w/V) syrup and two batches of CH 10% (w/V) rectal solution were prepared. One syrup and one rectal batch were added of 0,1% (w/V) methyl *p*-hydroxybenzoate (PABA). In order to simulate the multi-dose dispensing form, each batch was divided into light-resistant glass bottles and stored at 5±1°C, 20±1°C and 30±1°C for 28 days. The storage settings were chosen to simulate ICH conditions. The physical, microbiological and chemical stability was tested until 28 days. At each test point (0, 7, 14, 21, 28 days) physical stability was assessed by visual and colorimetric examination, in order to confirm the absence of visible particulate matter or color changes. The samples were subjected to microbiological evaluation in order to determine the total microbial count, according to Ph.Eur. Chemical stability was assessed by a quali-quantitative determination through nuclear magnetic resonance and a pH control.
Moreover, another two CH 10% (w/V) rectal solutions were prepared, one by the addiction of citric acid and one by the addiction of phosphate buffer (pH 5,5). These solutions were stored in the same conditions of other batches and tested until 28 days.

Results
No change in color and any visible microbial growth was observed. The concentration decreased on day 28 for syrup and on day 14 for rectal solution, due to the formation of formic acid. Instead, citric acid/phosphate buffer rectal solutions remained stable for 28 days. Chemical degradation was confirmed by a decrease in pH values . All these results were not affected by storage conditions and by the presence/absence of PABA.

Conclusions
Unitary dosage forms of CH 10% (w/V) syrup and rectal solutions were stable for a month when stored in multi-dosage light-resistant glass containers.