



Effect of Electrolyte Introduction on Injectable Emulsion Stability

Application

Pharmaceutics

Objective

Study the effect of addition of electrolyte on the stability of injectable emulsions

Device

TURBISCAN® Classic

INTRODUCTION

Injectable emulsions for therapeutic nutrition must cover all the individual needs for calorie, hydro-electrolytic and nitrogenous contents. The therapeutic nutrition can be done with successive or simultaneous administration of lipid emulsions, electrolyte and trace element.

The simultaneous administration of a dispersion containing all the nutriments, requires to check the compatibility between the nutritive elements and the stability of the lipid emulsion in the dispersion.

So, we analysed the stability of an injectable emulsion, with the Turbiscan Classic upon additions of calcium chloride at different concentrations.

METHOD

Three dilutions (1/1 in volume) were prepared with an injectable emulsion (at 10% in soya oil), and:

- a solution of calcium chloride at 6mM,
- a solution of calcium chloride at 4mM,
- demineralised water.

Samples number	3
Analysed volume	6 ml
Temperature of analysis	20-22°C
Duration of analysis	2 hours

The obtained curves at time T=0 were selected as references. The represented spectrums show the evolution of back-scattering light intensity (% , ordinate axis) on the height tube (mm, abscises axis) as a function of time (last curve in red).

RESULTS

From the profiles obtained, we can see different kinds of backscattering variation :

- a backscattering decrease in the middle of samples with calcium chloride, characteristic of a size variation of oil droplets (Figure 2).
- a backscattering increase at the top of samples with calcium chloride, characteristic of a concentration increase of the oil phase in this zone and so, a cream layer formation (Figure 2).
- a backscattering decrease at the bottom of the samples diluted with calcium chloride, characteristic of a clarification of the products in this zone (Figure 2).
- no significant backscattering variation for sample diluted with water (Figure 1).