Glucose analysis for Quality Control of Total Parenteral Nutrition formulations

Glucose analysis is a complementary application to cation analyses for the quality control of total parenteral nutrition formulation

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INTRODUCTION

Glucose is the main component of pediatric Total Parenteral bag. The control of Glucose content in pharmaceutical preparations is an important step before delivering bags to patients. This application describes the use of the Wyn-CE Capillary Electrophoresis system with a UV detection for the determination of Glucose in TPN preparation.

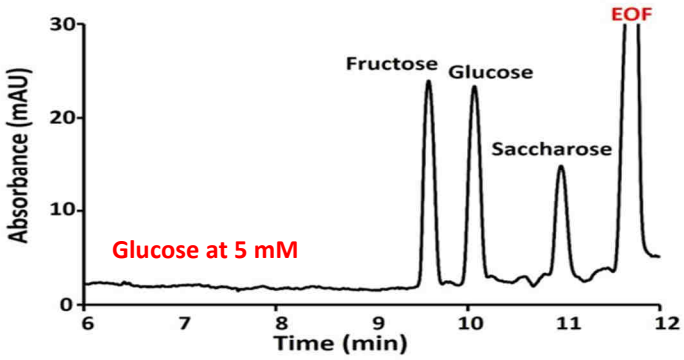
STANDARD AND REAL ANALYSIS

Buffer : Sugar WynSep buffer, pH 12.2
Capillary : fused-silica capillary, L = 70 cm, ID = 75 µm
Injection : hydrodynamic, 50 mbar, 5 s
Voltage : -25 kV
Detection : Indirect UV, 254 nm
Temperature : 25 °C

STANDARD ANALYSIS

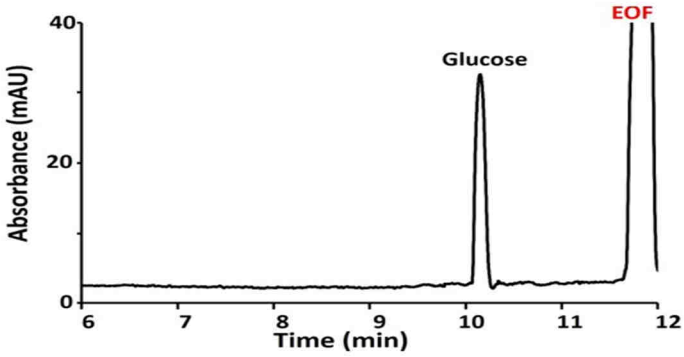
Carbohydrate CE analysis remains challenging, because of the high value of their pKa and the lack of easy-to-implement and sensitive detection methods. In this study, carbohydrate charges were provided by the high pH value and the UV detection was carried out with the implementation of a indirect UV detection.

Fructose, Glucose and Saccharose were separated as anions and detected in less than 12 minutes.



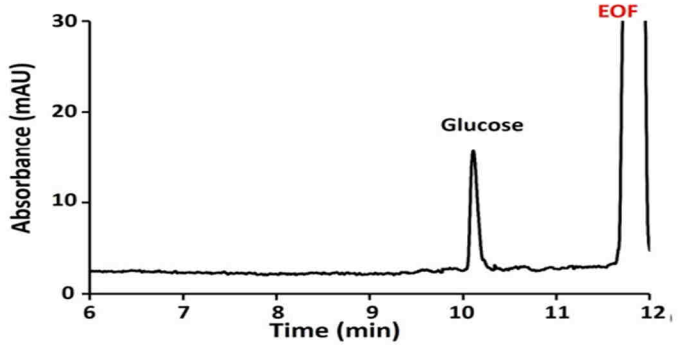
Industrial pediatric preparation
NP100
(dilution 1/100)

Glucose : 160 g/L



Hospital pediatric preparation
(dilution 1/100)

Glucose : 55 g/L



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