HPLC Application: Sugars in Soft Drinks and Wine

HPLC Application Note 2.74

Introduction

Carbohydrates are important constituents in both food and drink. They are frequently added to improve the flavour and palatability to the consumer. The residual sugar content of alcoholic beverages is used for the calculation of their carbohydrate and calorie content. Non-alcoholic drinks, especially carbonated soft drinks, can have as much as 10.7 g of sugars added to them. This is usually added in the form of corn syrup, which is a mixture of mainly fructose and glucose (breakdown products of sucrose) with a smaller amount of sucrose. Carbohydrates do not absorb light sufficiently to be able to use a UV/Visible detector, so the detector of choice is a refractive index detector (CE 4700). There are specific carbohydrate columns for the separation of mixtures of sugars, but these can be expensive. This application note describes the use of a silica column with an amino group, which gives a good separation of the most commonly occurring carbohydrates.

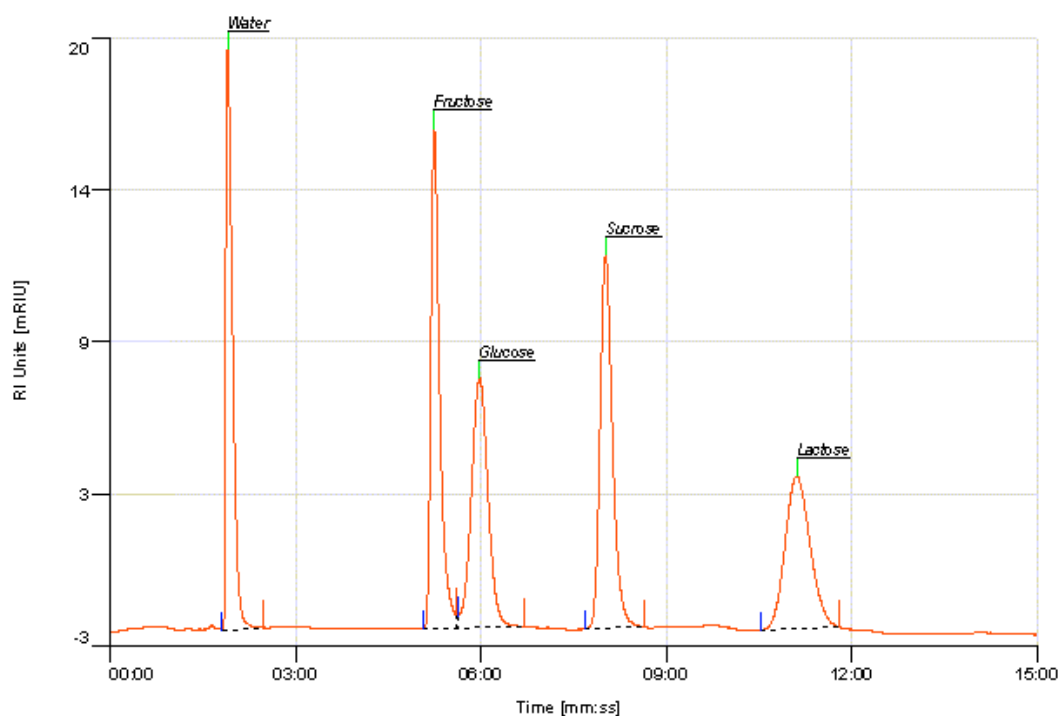|	
Instrument:	Adept System 9 with on-line solvent degasser.
Column:	Hypersil APS 5µm, 150 x 4.6 mm, SphereClone, 5µm, 250 x 4.6 mm, or Zorbax NH2 5µm, 150 x 4.6 mm.
Mobile Phase:	75% Acetonitrile, 25% De-ionised Water
Flow Rate:	1.5 mL/min
Detector:	Refractive Index detector (CE 4700)
Sample Volume :	20µL

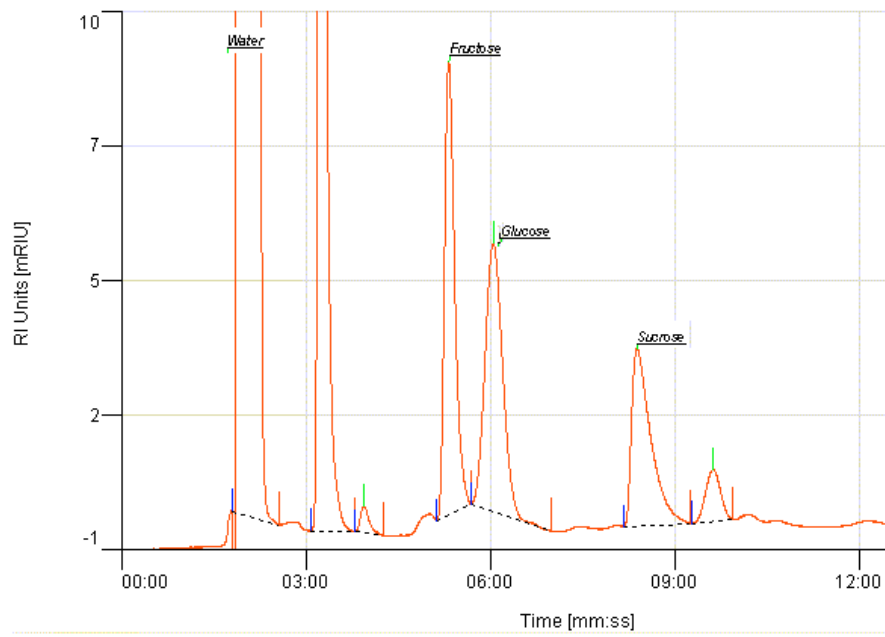**Figure 1**: Mixture of four sugar standards: Fructose, Glucose, Sucrose and Lactose.
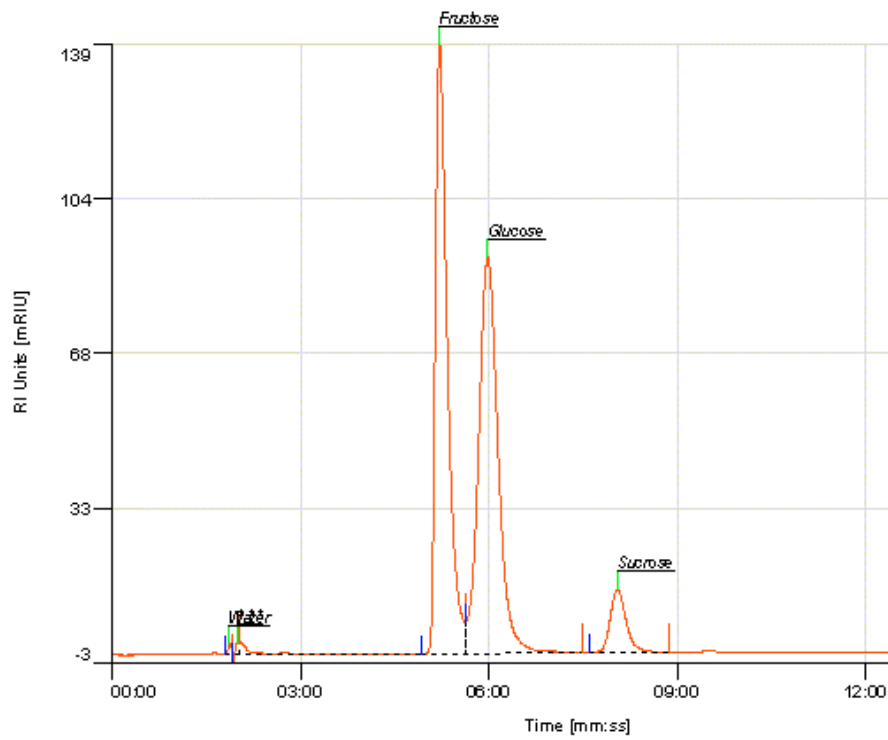
Figure 2: Red Wine.

Figure 3: Pineapple juice

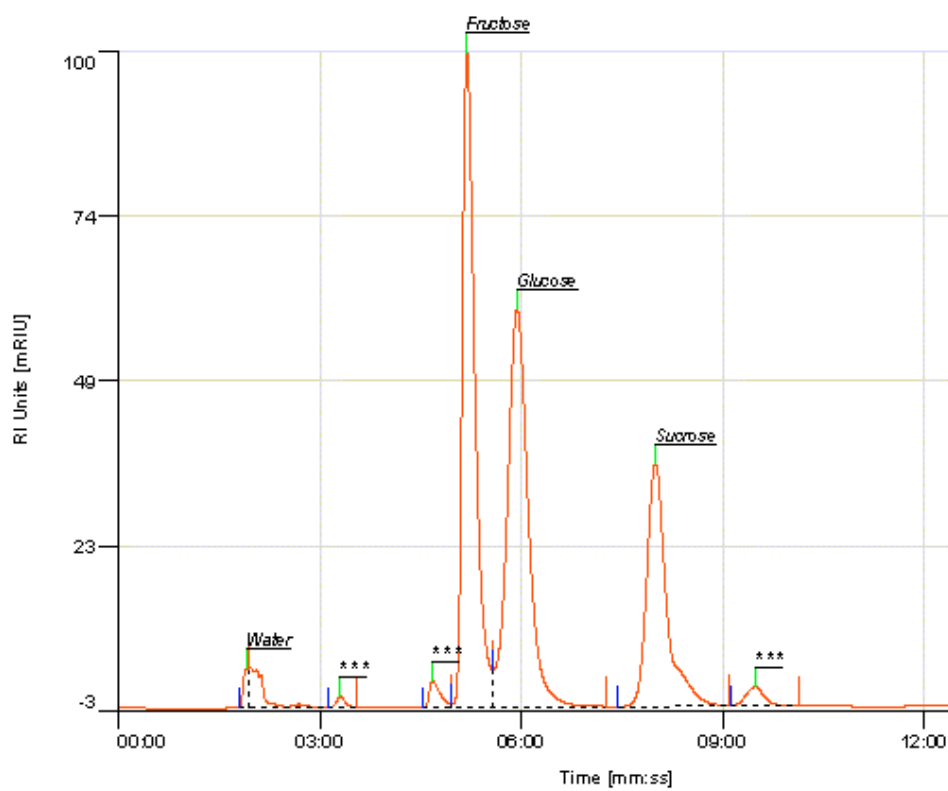**Figure 4:** Orange juice.