

Analysis of Sweeteners and Other Ingredients in Drinks by Liquid Chromatography with UV Detector and Tandem Mass Spectrometry

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Non-nutritive sweeteners are increasingly important as public awareness of diabetes and its special dietary requirements, and more consumers are concerned about obesity and dental caries. Most of sweeteners are synthetic, such as aspartame, saccharin, and sucralose. Recently, stevioside and rebaudioside are used as natural non-calorie sweeteners in foods and drinks worldwide.

In this study, we developed an LCMSMS method for the determination of level of sweeteners (aspartame, sucralose, acesulfame-K, cyclamate, saccharin, stevioside, and rebaudioside) and some common additives (benzoic acid, sorbic acid, and caffeine) in drinks. This method has been validated in fruit drink in range of 1 to 10 mg per liter. The recoveries were in the range of 50 to 140% comparing with solvent diluted standards using external standard method; and the relative standard deviation was less than 20%. Also, we developed an HPLC method for the determination of level of stevioside and rebaudioside in soft drinks using a common UV detector. This method has been validated in diet coke in range of 10 to 1000 mg per liter. The recoveries were in the range of 95 to 105%; and the relative standard deviation was less than 5%.