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Analysis of Sorbitan Fatty Acid Esters by HPLC

N. GARTI, E. WELLNER, A. ASERIN and **S. SARIG,** Casali Institute of Applied Chemistry, School of Applied Science and Technology, The Hebrew University of Jerusalem, 91904 Jerusalem, Israel

ABSTRACT

Sorbitan esters of several fatty acids have been analyzed by high pressure liquid chromatography (HPLC) using an RP-18 column. No derivatization was necessary. Mono-, di- and trisorbitan esters of palmitic, stearic, oleic, isostearic and sesquioleic acid have been separated using isopropanol/water as the elution mixture.

INTRODUCTION

The need for analysis of food emulsifiers arises at several stages, e.g., for production control, for comparison of emulsifiers purchased from different suppliers, and for the detection of the type of emulsifiers used in a commercial good product. Authorities may also require analyses to meet health regulations. Since most food emulsifiers are complex mixtures of several isomers and derivatives, it is quite tedious to analyze their composition (1).

Several attempts have been reported on the separation, identification and quantitative estimation of the mono-, di- and trifatty acid esters of sorbitol and of its anhydrides (2–5). Most techniques are based on pretreatment (hydrolysis) of the emulsifiers and use of gas liquid chromatography (GLC) or high pressure liquid chromatography (HPLC) as the essential quantitative method for analysis (6).