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Unidimensional Thin Layer Chromatography of Salicylic Acid Derivatives on Boric Acid-Impregnated Plates in Drugs Studies

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Abstract

A unidimensional Thin Layer Chromatography system for the separation of salicylic acid and its derivatives (sulfosalicylic acid and Aspirin) has been developed. The separation was successfully using a solvent system of chloroform-methanol-water-ammonium hydroxide 120:75:6:2 (V/V) as mobile phase on TLC plates impregnated with boric acid. The method is based on different behavior of investigated compounds in impregnated TLC plates with different amount of boric acid. The effect of boric acid contents of TLC plates on separation factors like resolution (R_s), capacity factor (k') and selectivity factor (α) were investigated.

Keywords. *Thin Layer Chromatography (TLC), Aspirin, Salicylic Acid, Sulfosalicylic Acid.*

Introduction

Among the analytical methods applied in drugs studies, chromatographic techniques are the most valuable. They enable the separation and the identification of Functional groups in the compounds as well as the qualitative analysis of drugs composition. In recent years there has been a marked trend for pharmaceutical industries to develop a simple and fast method for drugs analysis. The advantages of TLC such as simplicity, ability to utilize low volume of mobile phase as well as solvents unsuitable for HPLC, speed of separation and low cost cause to use this technique for pharmaceutical analysis [1-5].

Salicylic acid is a natural signaling molecule for activation of plant defense mechanism and is a pharmacological agent for controlling the inflammatory response in humans. It has been shown in plant cells that salicylic acid is synthesized in response to environmental injury [6]and serves as a messenger molecule

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