

An Overview of Thin Layer Chromatography

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ABSTRACT

The present paper attempt to explain the basic ideas, significance and other parameters of Thin layer Chromatography (TLC) in different analytical methods. TLC can be performed with less complicated technique therefore it is less time consuming and economical, it has a wide application in pharmaceutical analysis. Thin layer chromatography can be used to note the progress of a reaction, determine the purity of a substance also it can be used to identify compounds present in a given mixture. Specific examples of these applications include: detection of pesticides or insecticides in food and water analyzing ceramides and fatty acids, analyzing the dye composition of fibers forensic, assaying the or identification of medicinal plants and their constituents or radiochemical purity of radiopharmaceutical. As 32 amino acids can be separated by TLC If it performed precisely. Also it can be used to identify the impurities in a compound. This method can be used as a preliminary analytical method prior to HPLC. TLC is very much preferred in most standard methods in environmental toxicology, industrial chemistry, food chemistry, water, inorganic and pesticide analysis, cosmetics, dye purity, herbal analysis and plant materials. In this review article the recent approach of TLC will be summarizes as an application of TLC based on Instrumental thin-layer chromatography, digitally enhanced TLC and Smartphone-based thin layer chromatography.

Key words: Thin layer Chromatography, Heavy metal ions, separation and identification.

INTRODUCTION

The technique of thin layer chromatography was first introduced by Izamailov and Shraiber[1] in 1938 they called drop chromatography on horizontal thin layers. These workers used this technique for separating plant extract on 2mm thick and firm adhesive layer of alumina set on glass plate. Little notice was taken of the method until 10 years later, when two American Chemists describe the separation of terpenes, essential oil by this method [2]. Thin layer chromatography was presently known, began to attract attention through the work of Kirchner and his coworkers [3-5] starting in 1951, when Stahl[6] described equipment and efficient sorbents for the preparation of plates, that the effectiveness of this technique for separation was shown. This method is now one of the most frequently described separation techniques in quantitative as well as qualitative analysis. Thin layer chromatographic technique is considered to be superior technique than paper chromatography and column chromatography because of the certain specific reasons enumerated below.

1. In thin layer chromatography the separation is the sharpest as compared to other two method.
2. It requires less time (15-50 min) and less amount of substance(0.4mg).
3. Acid can be changes prayed on thin later chromatography plate for identification purpose which is not possible with other method.