

## Reversed-phase pH gradient thin-layer chromatography of some plant origin substances showing weak base properties

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### Abstract

High-performance thin-layer chromatography, HPTLC, enables rapid and parallel separation of numerous samples therefore it is commonly used for screening analysis of plant extracts or herbal medicinal products.

Substances of plant origin showing weak base properties (e.g. alkaloids) in aqueous solutions undergo partial dissociation. A very important tool affecting retention and shape of the peaks/spots of such substances is pH. In reversed-phase high-performance liquid chromatography (RP HPLC) the pH gradient is commonly used separation technique applicable to organic substances with ionogenic groups. The pH gradient has typical features of the gradient like peak compression, improves sensitivity, and minimizes peak tailing due to peak compression, which is especially advantageous for separation of organic base analytes.

Our research group proposes the implementation of a prototype device for development of stepwise pH gradient thin-layer chromatograms of organic base analytes (alkaloids) with controlled developing solvent velocity [1]. By changing the pH of the mobile phase solution, it is possible to influence the retention, selectivity, and shape of the spots/zones of the separated substances. The reproducibility of the gradient migration distances of separated substance zones is satisfactory.

HPTLC RP-18W chromatographic glass plates (Merck) were used as a stationary phase. The mobile phase was composed of methanol and a buffer of appropriate pH in the range from 2.5 to 10.5.

Obtained pH gradient chromatograms will be shown. The advantages and disadvantages of the proposed solution will be discussed.

### Biography:

Adrian Szczyrba (presenting coauthor), student of the fifth year of pharmacy, member of Student Research Group.

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