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## Hydrophilic Interaction Liquid Chromatography

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### ABSTRACT

Hydrophilic interaction liquid chromatography (HILIC) is a most popular technique for the separation of polar compounds that are poorly retained by Reverse Phase Liquid Chromatography (RPLC). Hydrophilic interaction liquid chromatography provides approach to effectively separate small polar compound on polar stationary phases. Andrew Alpert introduced the term “Hydrophilic interaction liquid chromatography” in year 1990 where polar analytic solute separated on polar stationary phase with polar solvent such as water as a minor constituent of mobile phase. The advantages of HILIC include the ability to retain polar and ionic solutes that elute too readily in reversed-phase (RP) analysis, and the often-different selectivity that is obtained in comparison with RP-LC. HILIC mobile phases typically contain high concentrations of acetonitrile (60-97%) and low concentrations of water (3-40 %), resulting in the advantages of low viscosity and small back pressures, even with relatively long columns. Reversed phase (RP) separations technique use hydrophobic stationary phases with polar mobile phases so RP HPLC separations have some limitations such as analysis of highly polar compounds. Even some polar compounds are very difficult to analyse because they require high concentrations of aqueous buffer. HILIC technique is used for the separation of both small and large hydrophilic and very polar molecules, which include, carbohydrates, amino acids, peptides and proteins, glycoproteins, nucleosides, vitamins, phenols, pesticides, toxins, and hydrophilic metabolites occurring in food, water, human fluids, and human tissues extracts.

**Keywords:** Hydrophilic interaction liquid chromatography, technique, chromatography, concentration, metabolites, limitations, separation, amino acids.

