### <u>Exp's 1 & 2 = Column Chromatography & Acid-Base Extraction for Excedrin Separation</u> Revell, K. D. *Journal of Chemical Education.* **2011**, *88*, 1413.



Functional Groups, Intermolecular Forces (IMFs), & Polarity

- Ion-dipole

- Hydrogen bonding (H-bond)







- Dipole-dipole



### <u>CHROMATOGRAPHY</u> →

(S) Stationary Phase = SiO<sub>2</sub>

(M) Mobile Phase = Organic Solvents Hexanes, Ethyl Acetate (EtOAc), & Acetone

- Order of Separation

- Degree of Separation

## Thin-Layer Chromatography (TLC) Analysis – ACE, ASP, & CAF Standards



### TLC Analysist 6h Standardstion

#### LABORATORY EXPERIMENT



**TLC analysis of fractions** after column chromatography (Example from Revell article)

# Prepare Solvent, then Pack & Load the Column for Liquid Chromatography



### Run the Column



9. Combine & concentrate appropriate fractions in vacuo (rotary evaporator, rota-vap)

**10.** Percent (%) Recoveries from Excedrin tablet (~675 mg)

1 tablet = 250 mg ACE, 250 mg ASP, 65 mg CAF, plus inactive ingredients

## **Experiment Overview**

