

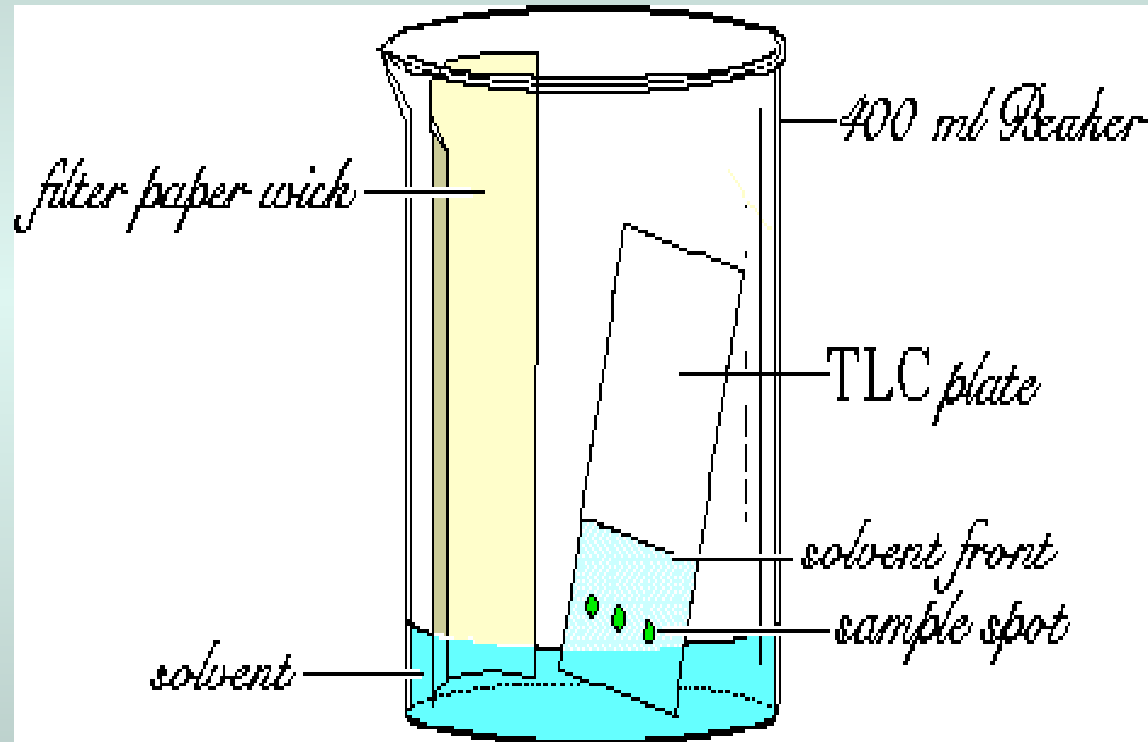
- **XROMATOQRAFIYA**
- **CHROMATOGRAPHY**

- **Əsas anlayışlar**
 - **Sorbsiya**
 - **Adsorbsiya**
 - **Absorbsiya**
 - **Fiziki adsorbsiya**
 - **Kimyəvi adsorbsiya (xemosorbsiya)**
 - **Hərəkətli faza**
 - **Hərəkətsiz faza**
 - **Elyuasiya**
 - **Eluent**

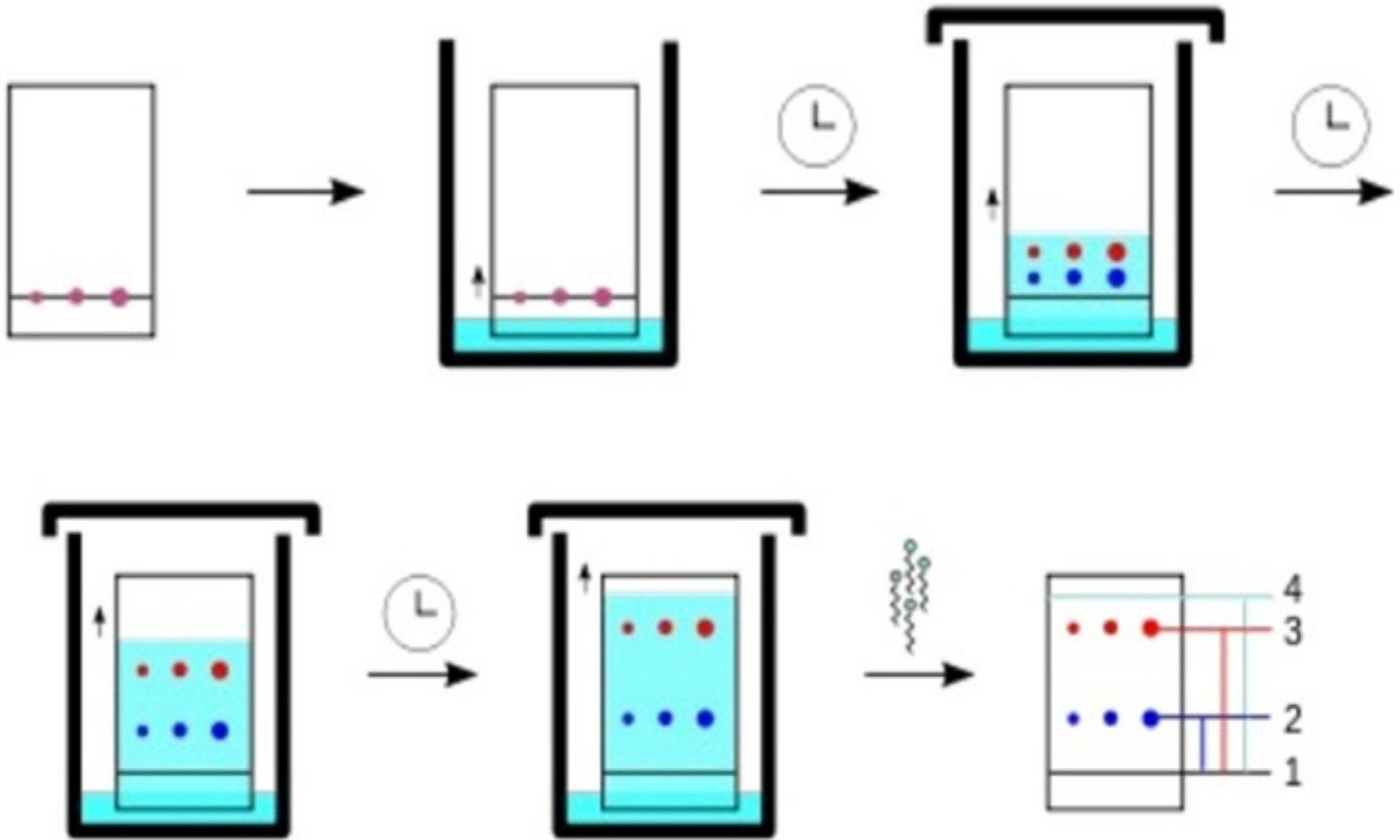
Nazik Təbəqədə Xromatoqrafiya

Thin Layer Chromatography

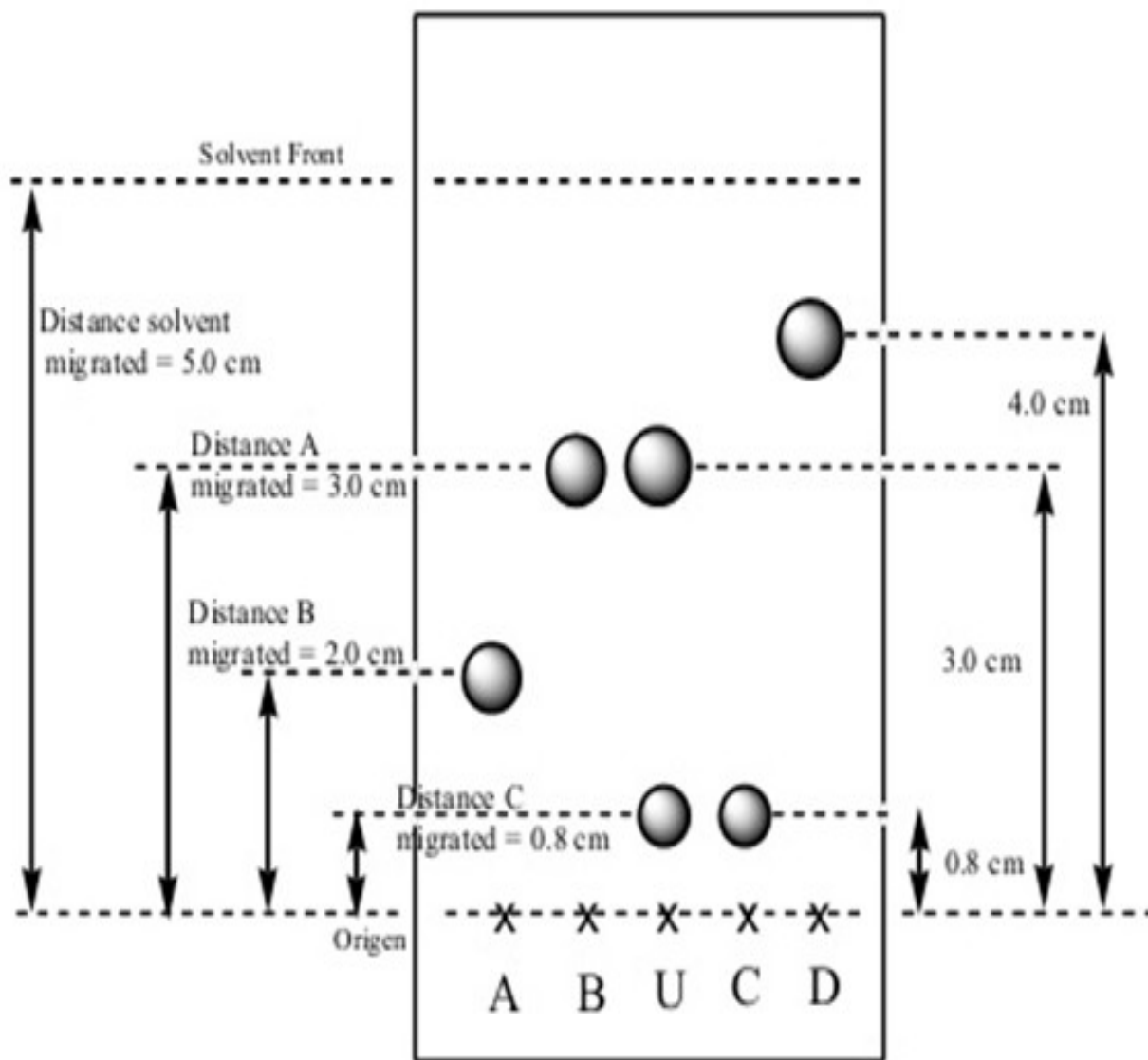
Kolonka
Column



NTX - TLC



R_f parametri



$$R_f(A) = \frac{2.0 \text{ cm}}{5.0 \text{ cm}} = 0.40$$

$$R_f(B) = \frac{3.0 \text{ cm}}{5.0 \text{ cm}} = 0.60$$

$$R_f(C) = \frac{0.8 \text{ cm}}{5.0 \text{ cm}} = 0.16$$

$$R_f(D) = \frac{4.0 \text{ cm}}{5.0 \text{ cm}} = 0.80$$

$$R_f(U_1) = \frac{3.0 \text{ cm}}{5.0 \text{ cm}} = 0.60$$

$$R_f(U_2) = \frac{0.8 \text{ cm}}{5.0 \text{ cm}} = 0.16$$

- İkiölçülü NTX
- Preparativ NTX
- Densitometriya
- YENTX

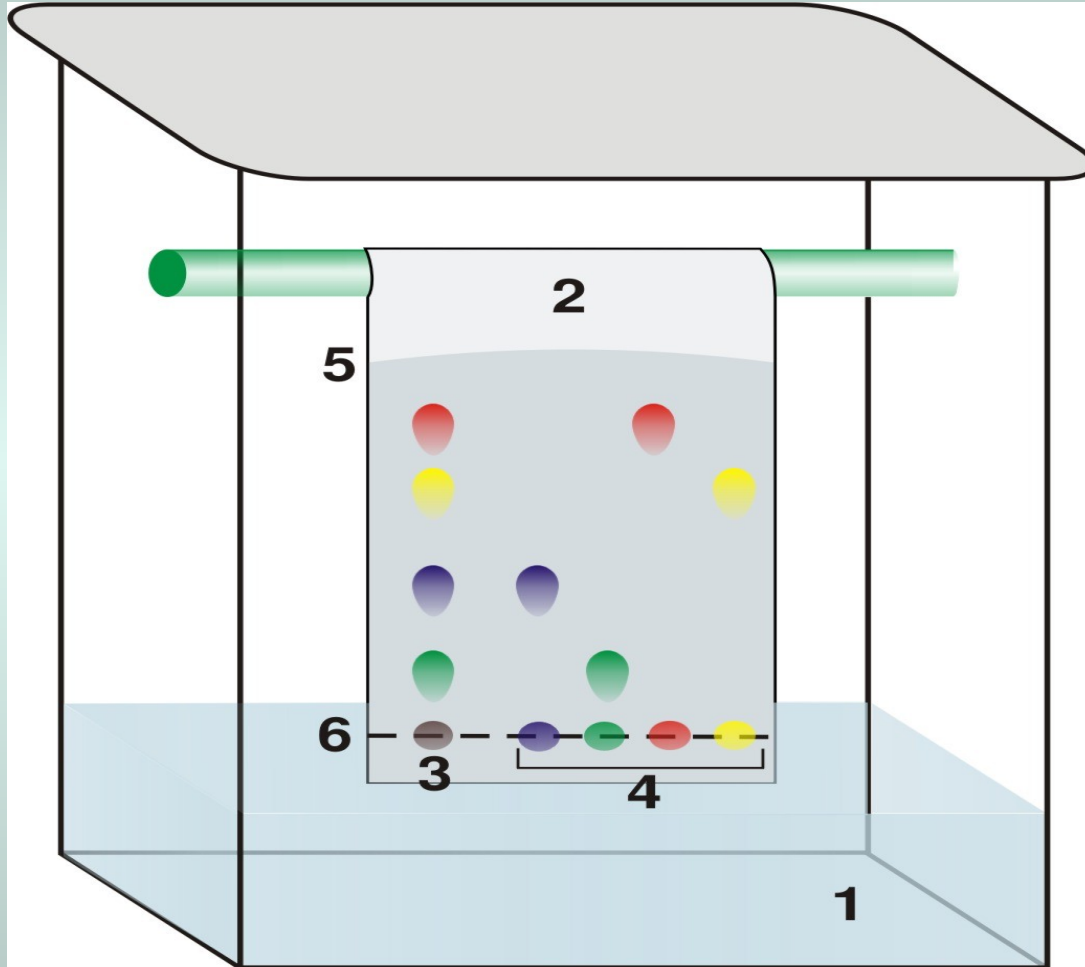
- **NTX-də aşkarlama**

1.UB-şüa altında

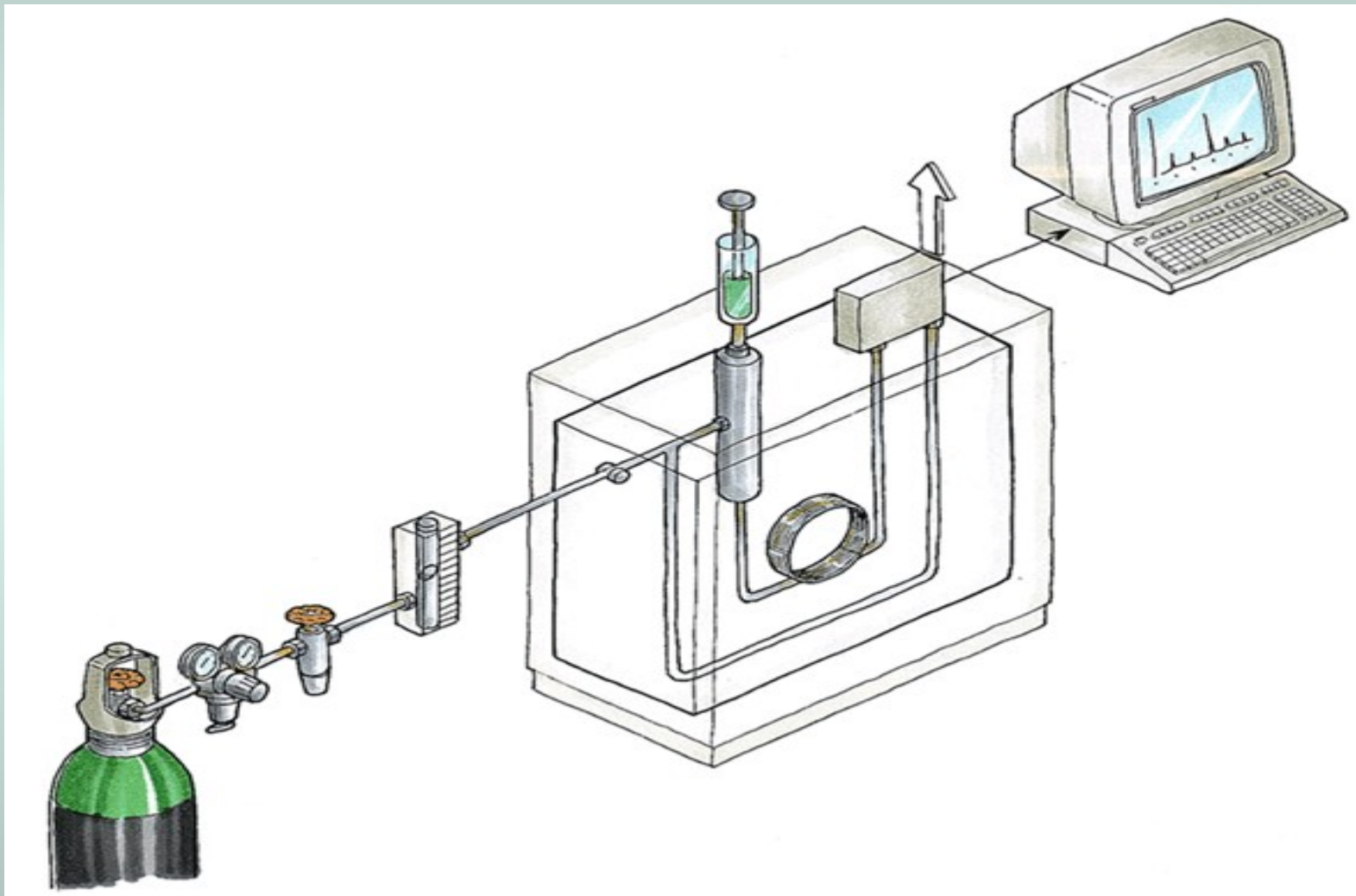
2.Kimyəvi üsullarla:

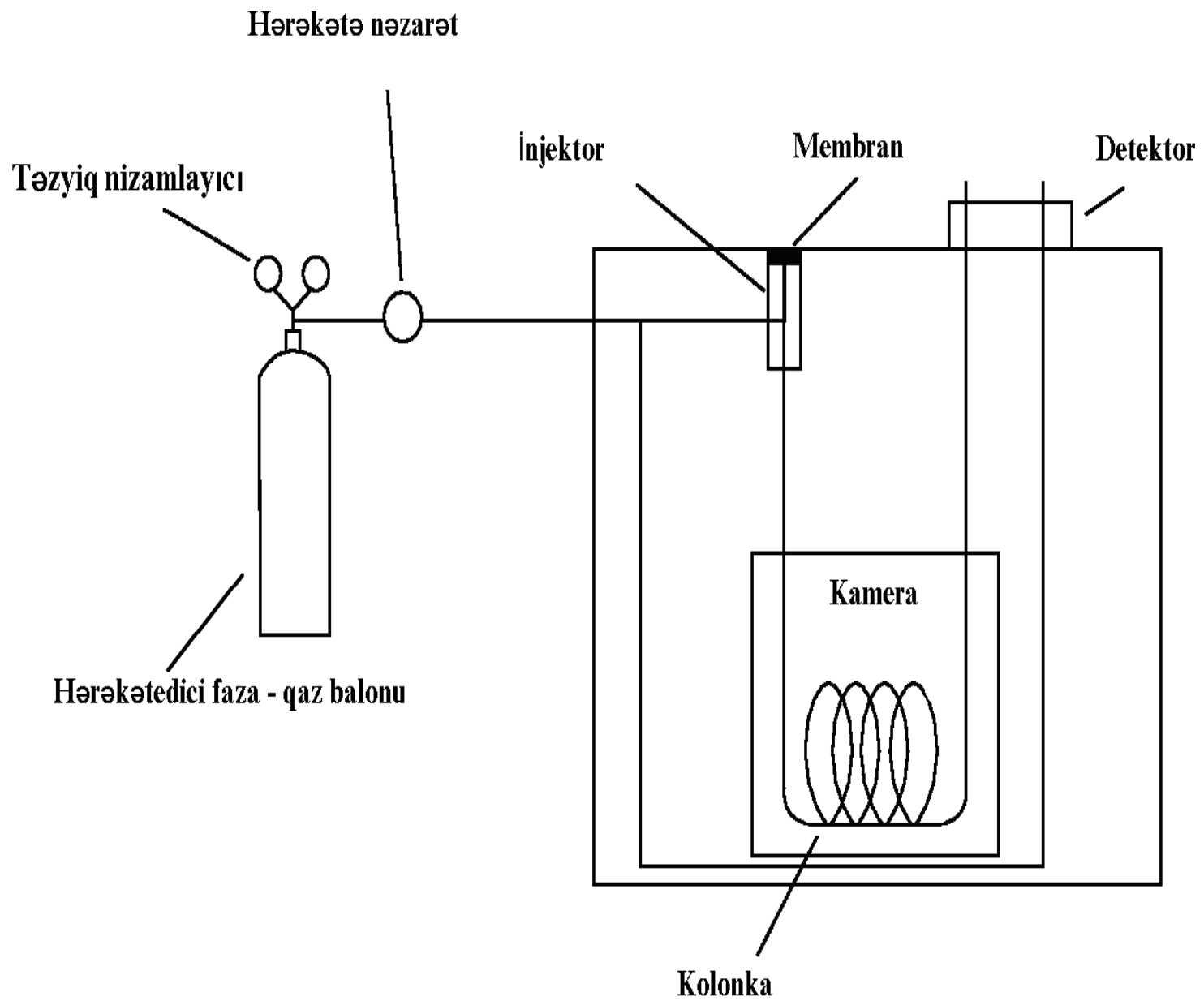
- **yod, ammonyak və s. buxarları altında**
 - **reaktiv çiləməklə**
 - **reaktivin içərisinə salmaqla**

- Kağız xromatografiyası



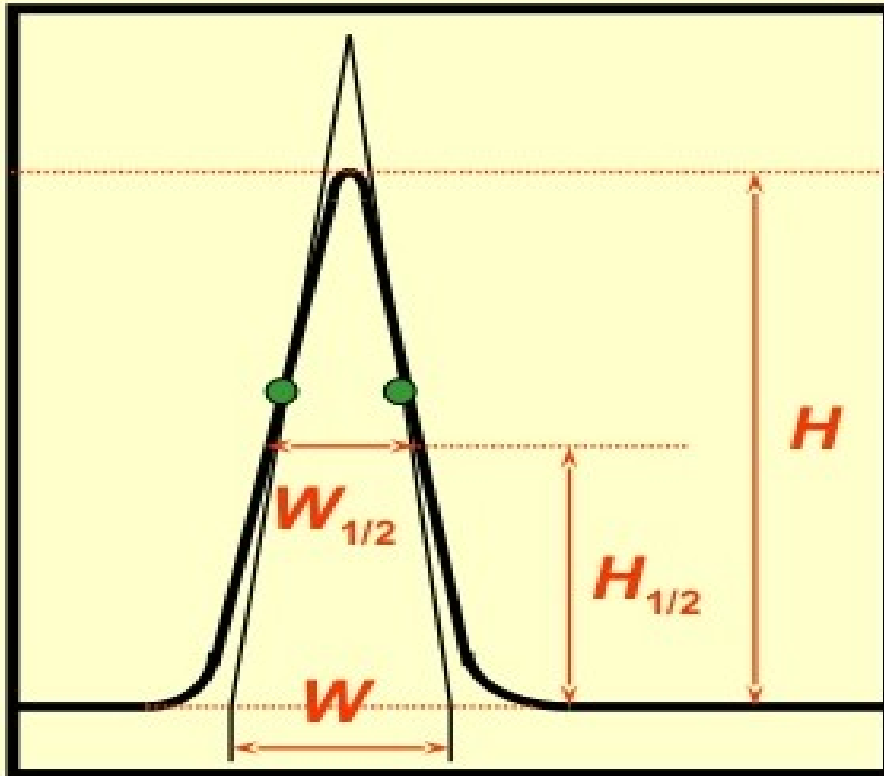
Qaz-maye xromatografiyası





Martin-Sinc nəzəriyyəsi

Nəzəri boşqabların sayı, N



$$N = 16 \left(\frac{t_R}{W} \right)^2$$

$$= 5.54 \left(\frac{t_R}{W_{1/2}} \right)^2$$

$$= 2\pi \left(\frac{t_R \cdot H}{Area} \right)^2$$

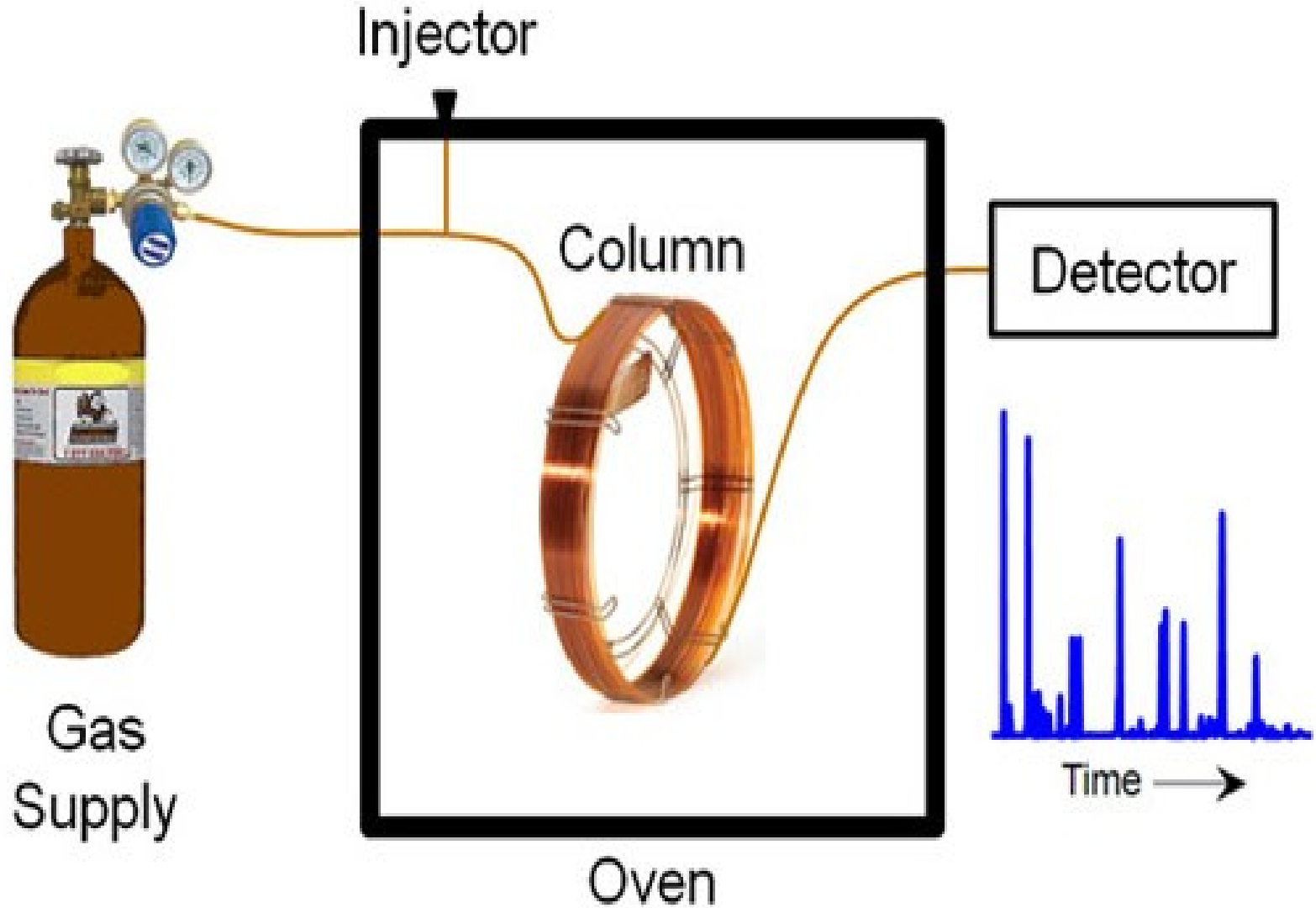
Van-Deemterin kinetik nəzəriyyəsi

Van Deemter Equation

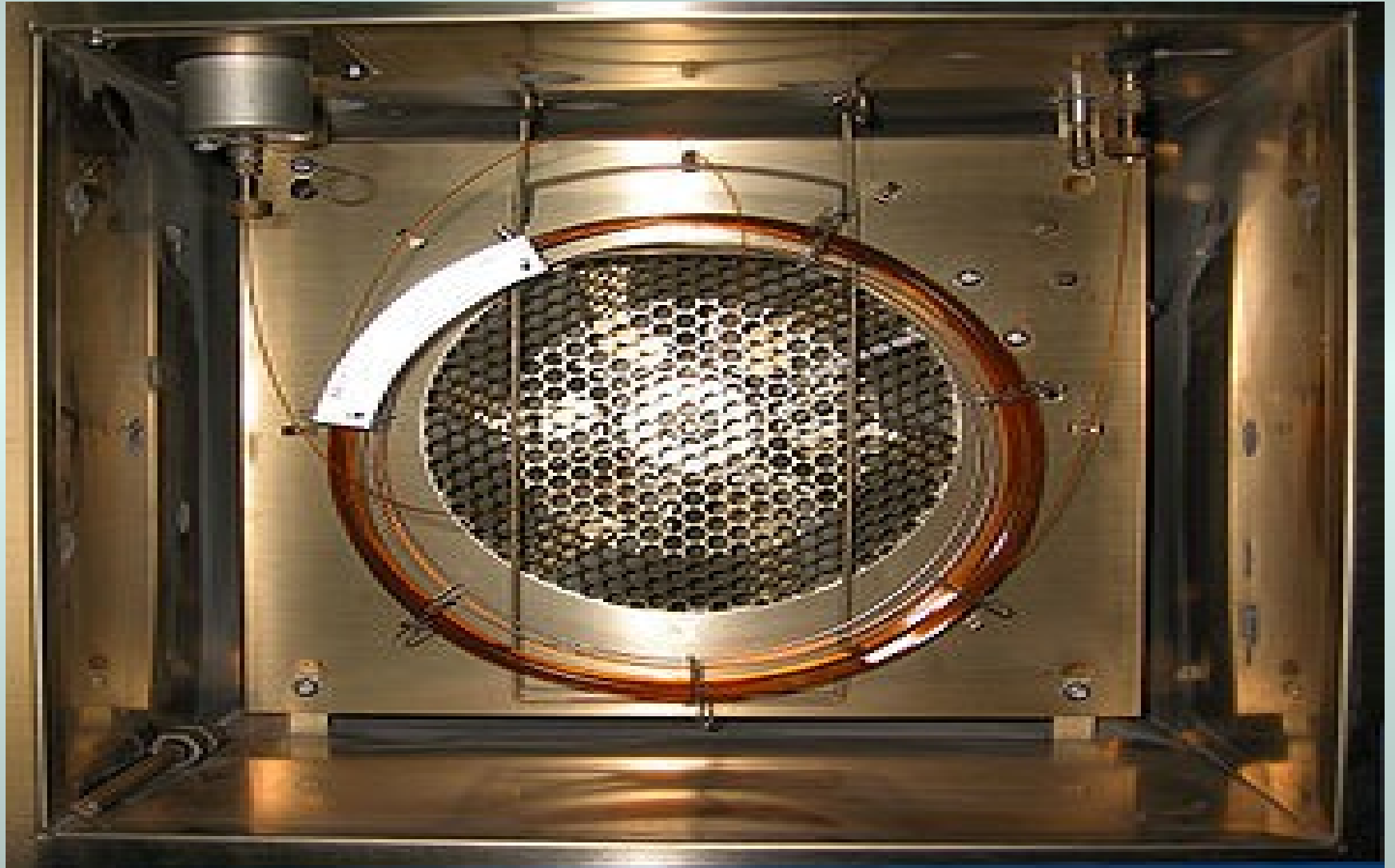
$$H = A + \frac{B}{u} + Cu$$

- H = height of a theoretical plate
- u = average linear velocity of the mobile phase
- A = eddy diffusion term
- B = longitudinal or ordinary diffusion term
- C = nonequilibrium or resistance to mass transfer term

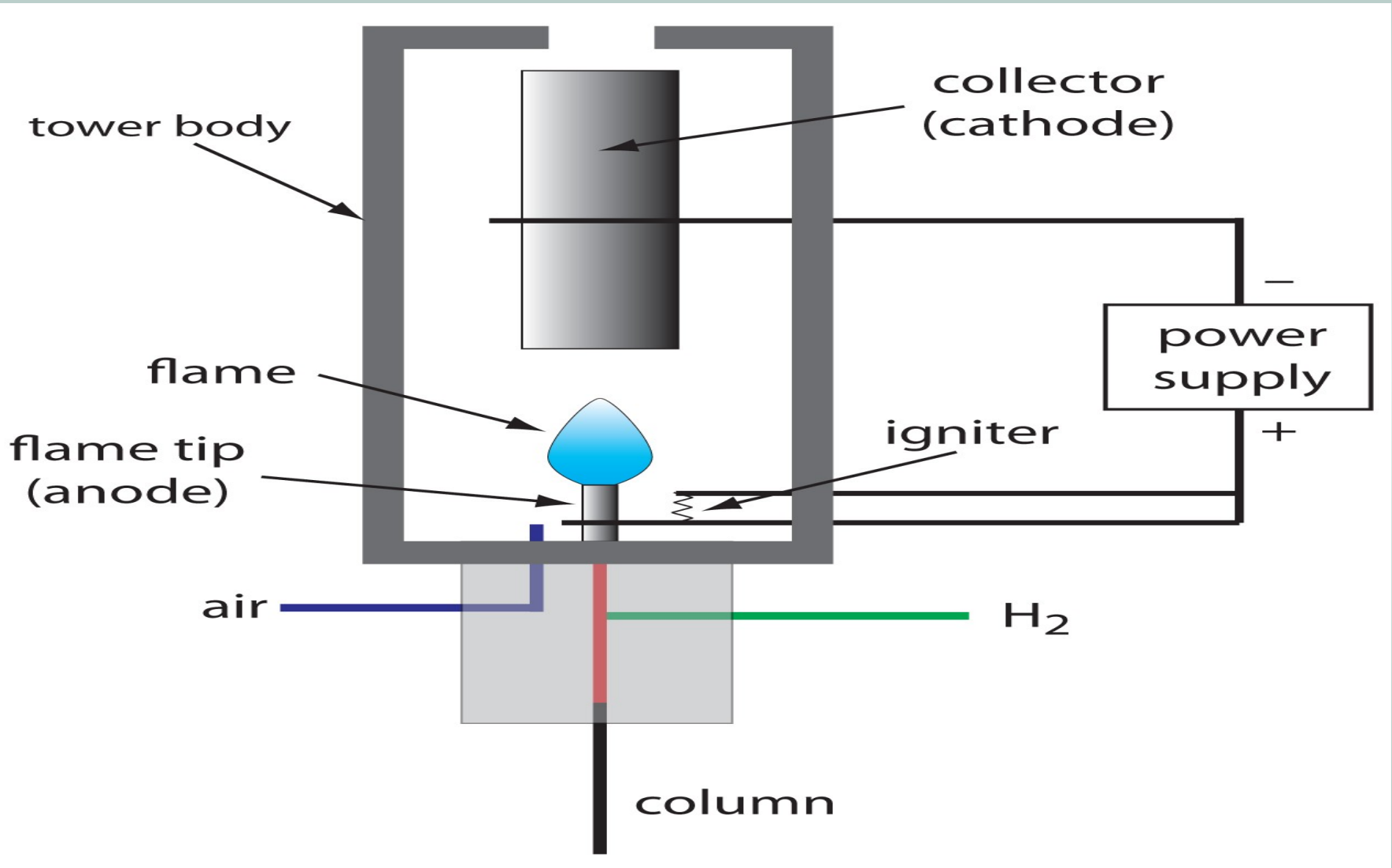
QMX - GLC



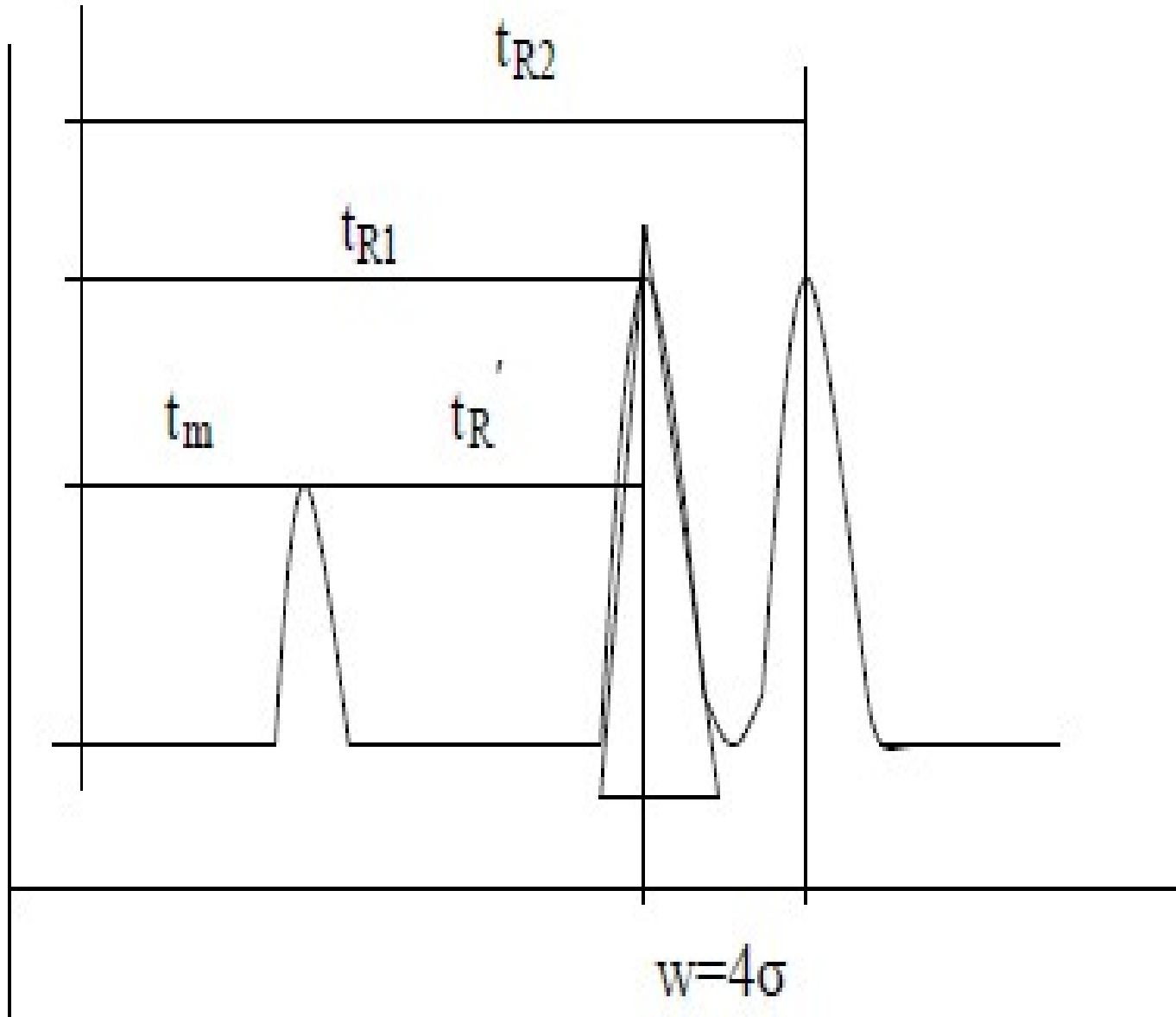
Kolonka - Column

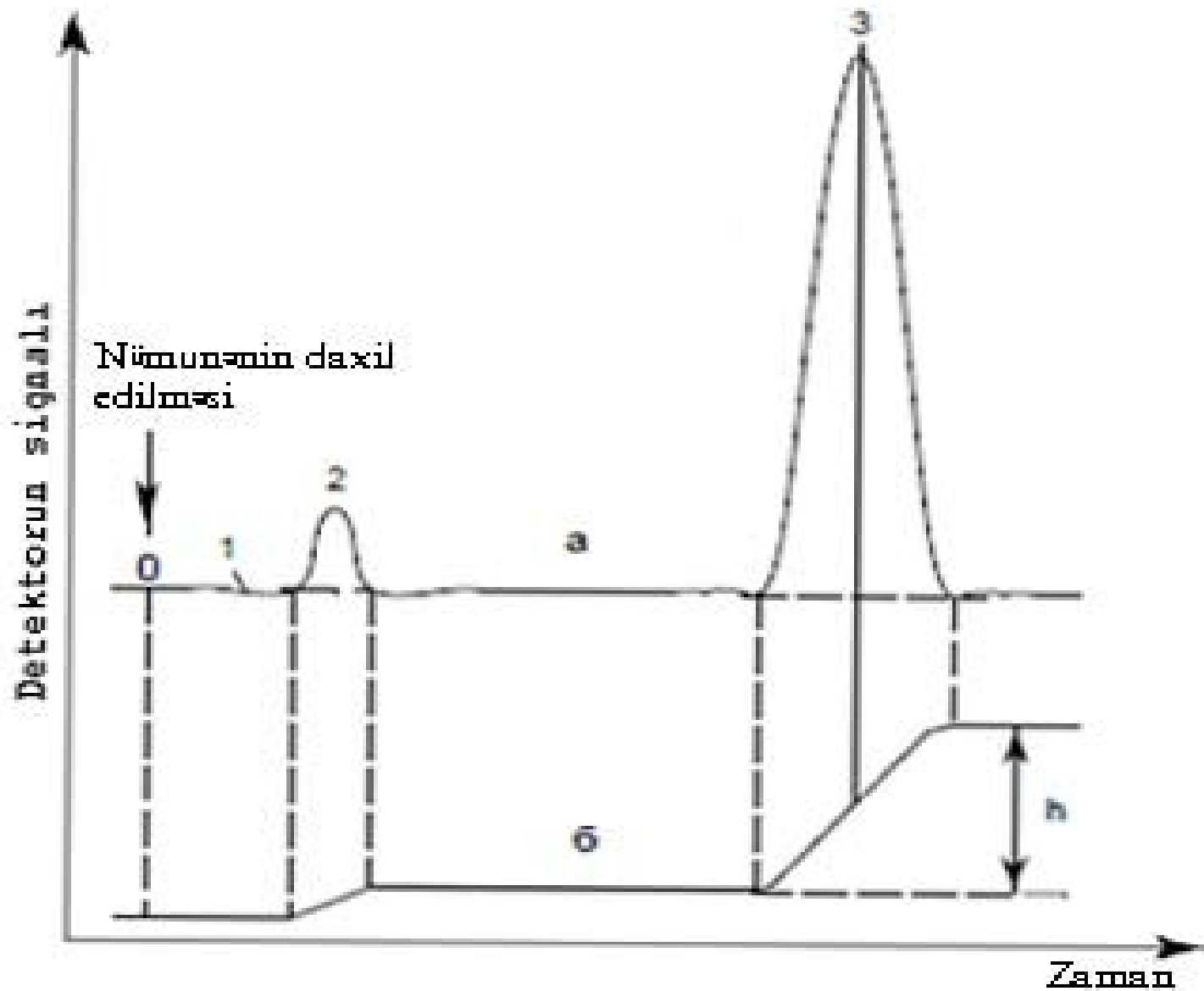


Detektor - AiD



A



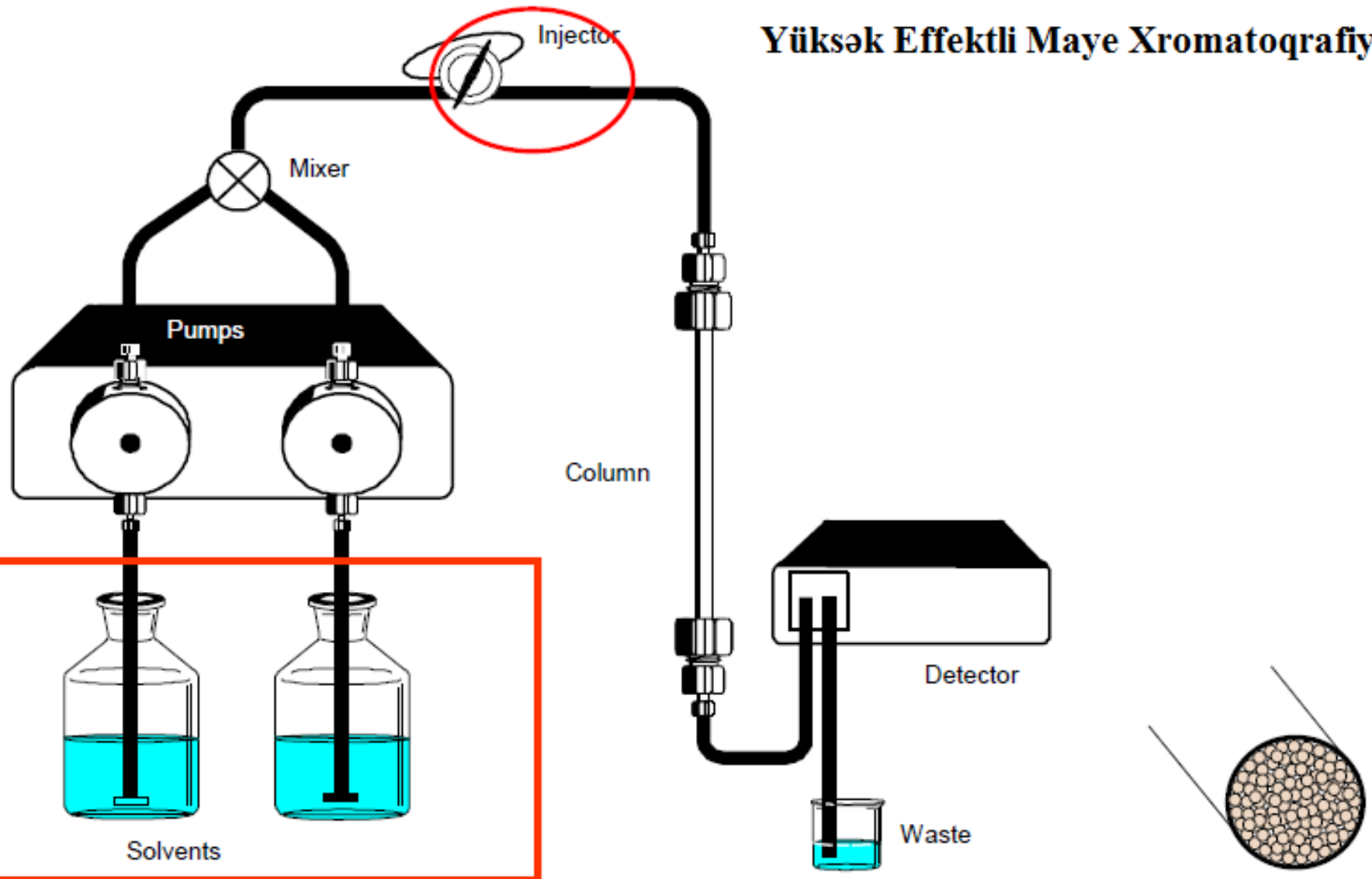


Kovaç və ya saxlanma indeksi

$$I = 100 \frac{\lg(t'_{r,i} / t'_{r,n})}{\lg(t'_{r,(n+1)} / t'_{r,n})} + 100n,$$

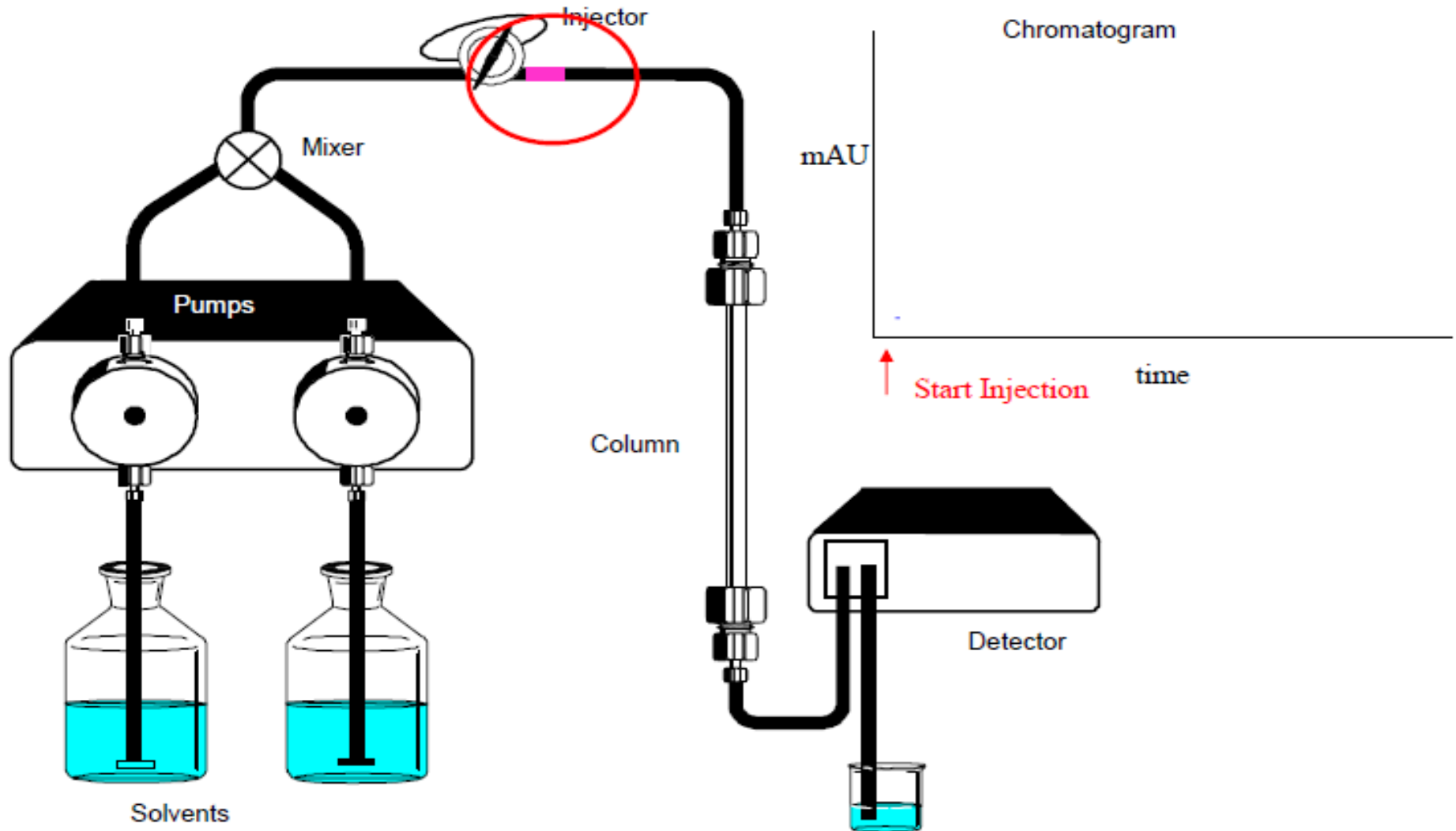
YEMX - HPLC

Yüksək Effektli Maye Xromatografiya



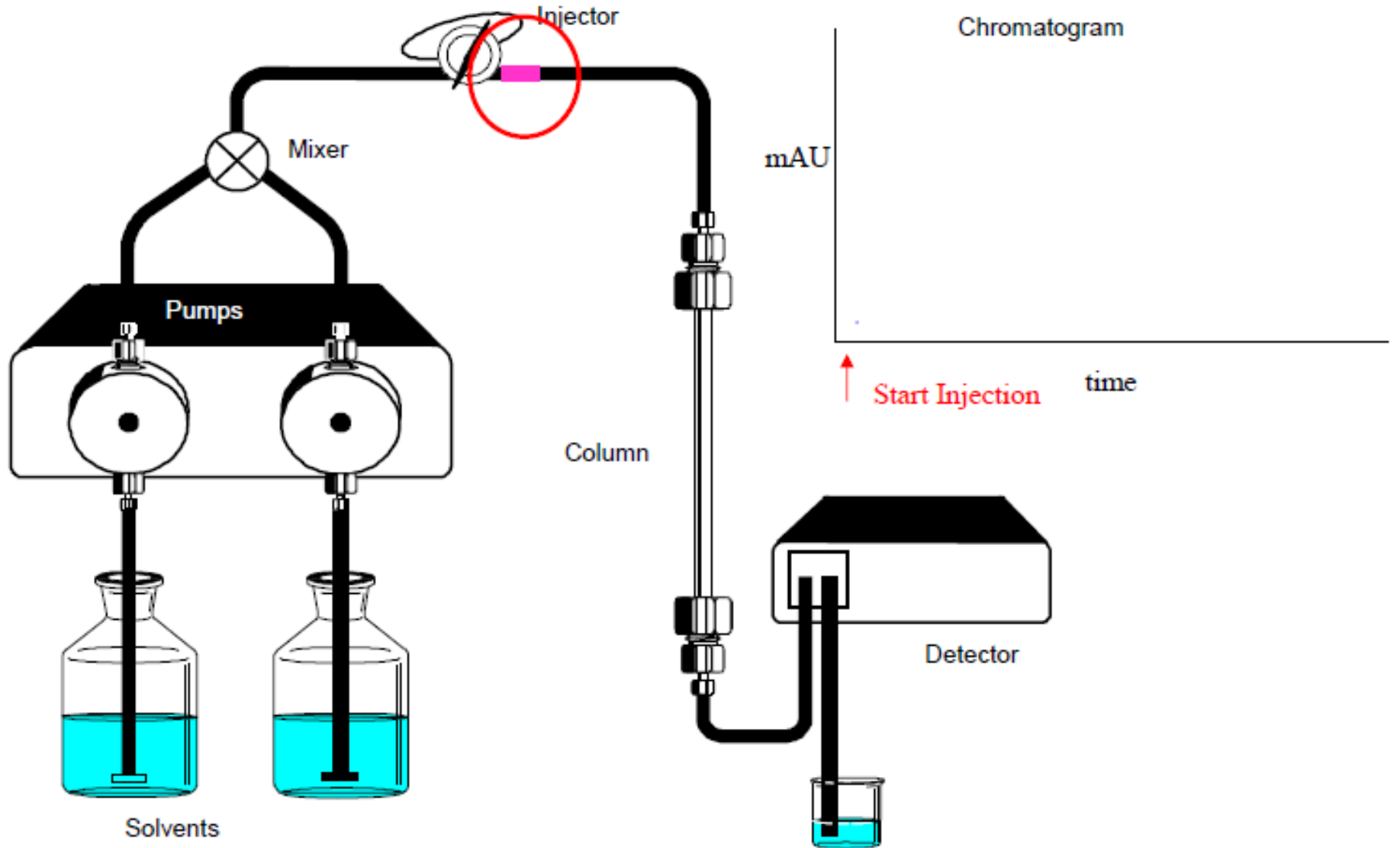
High Performance Liquid Chromatograph

- HPLC

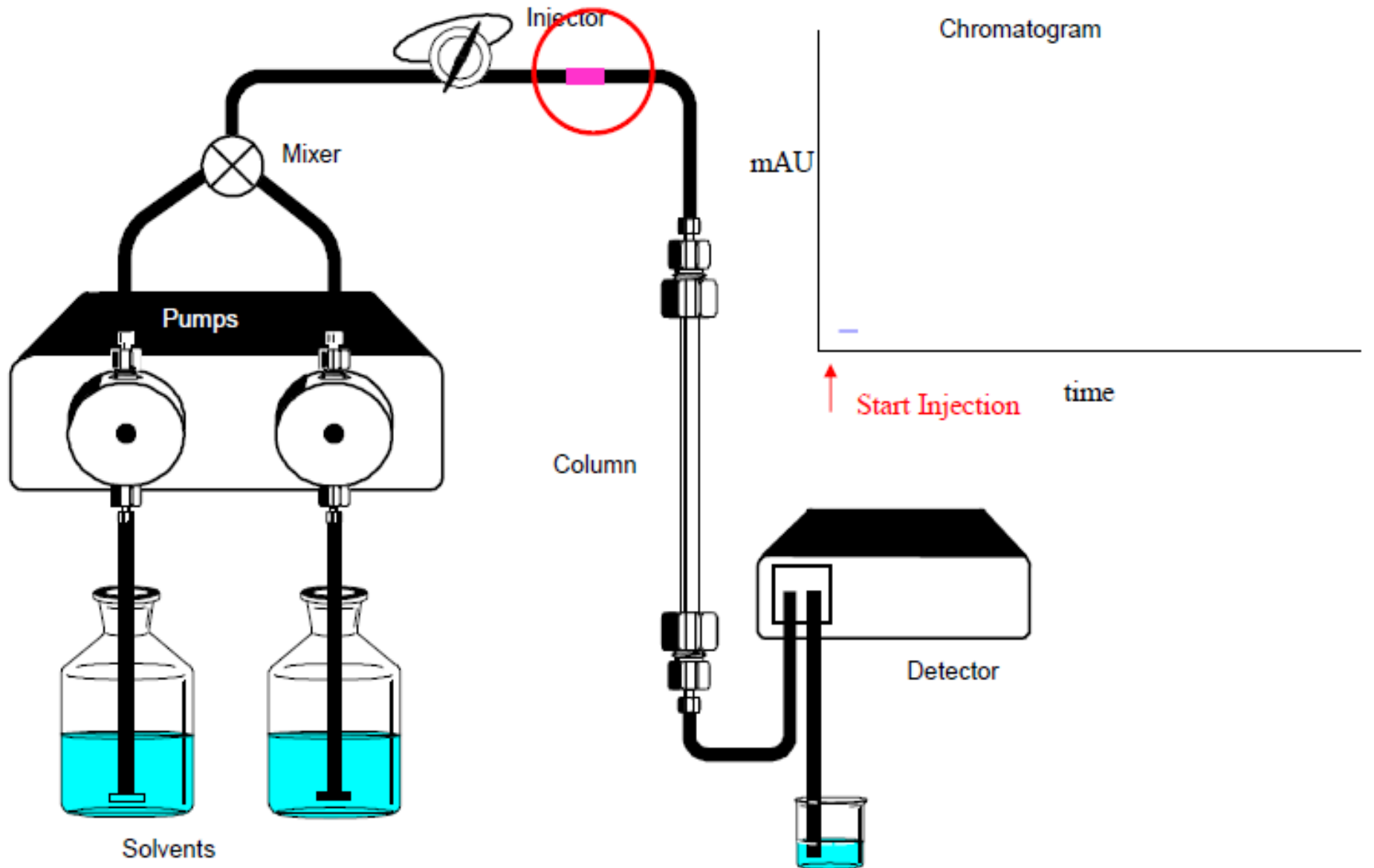


High Performance Liquid Chromatograph

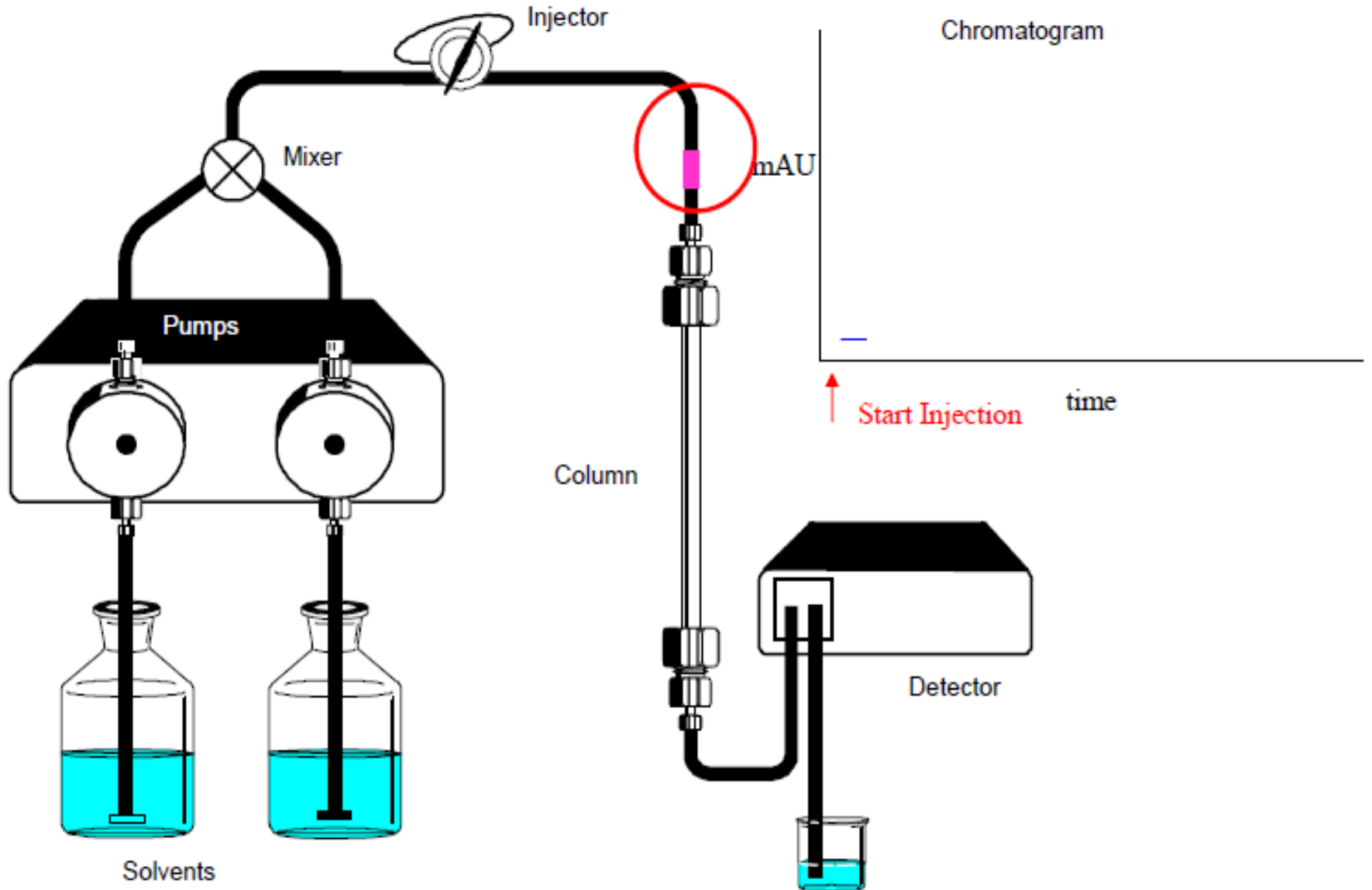
- HPLC



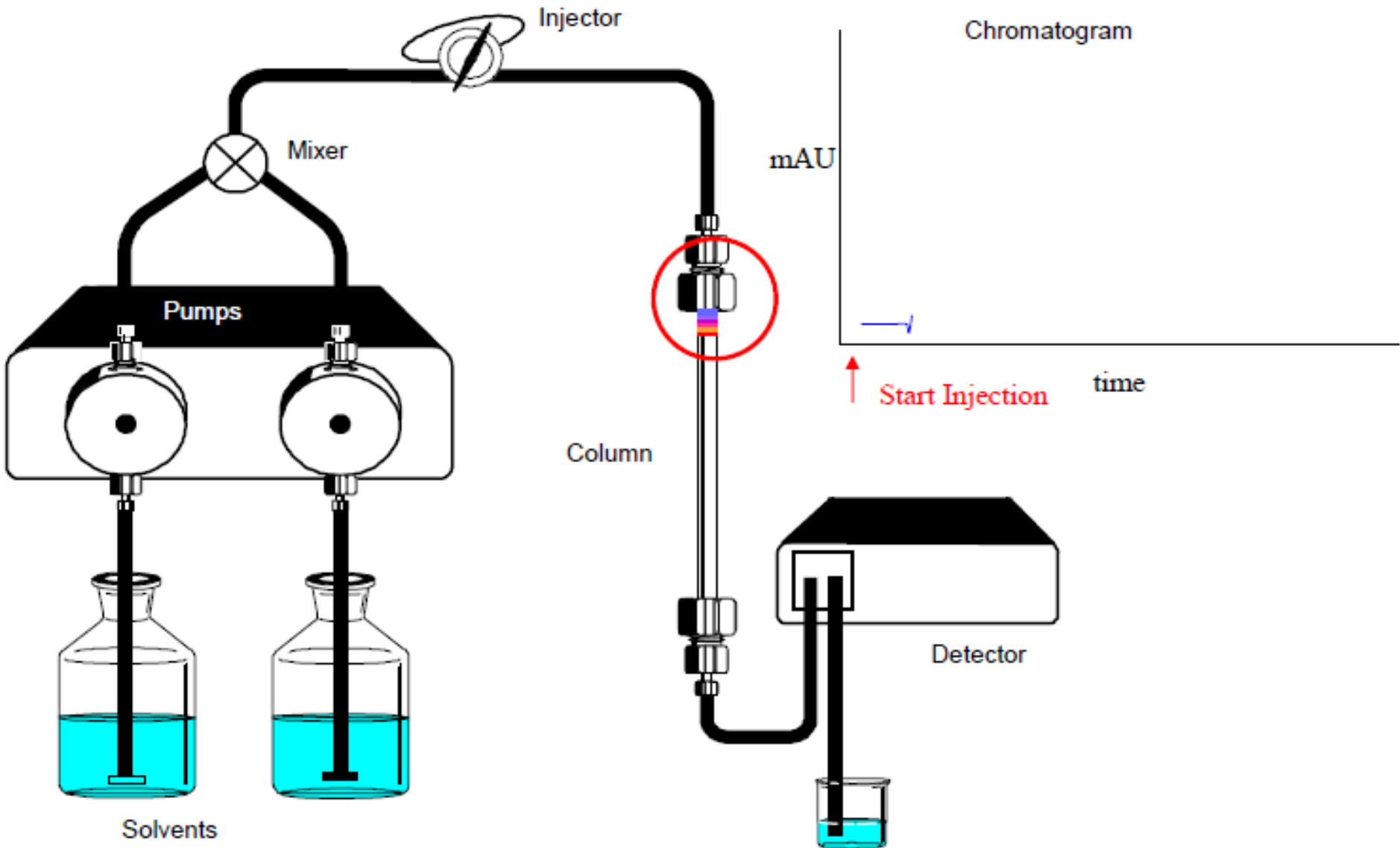
- HPLC



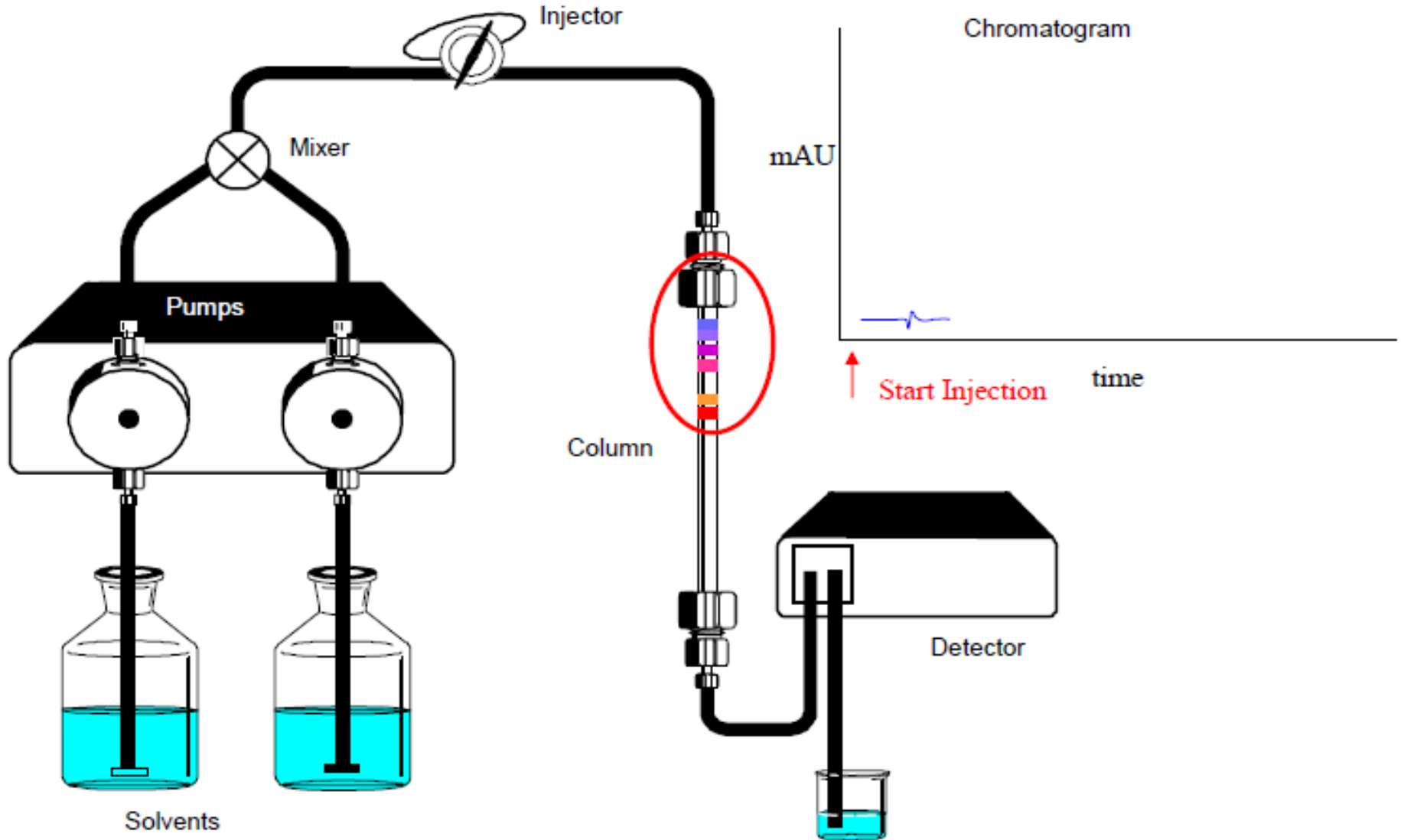
- HPLC



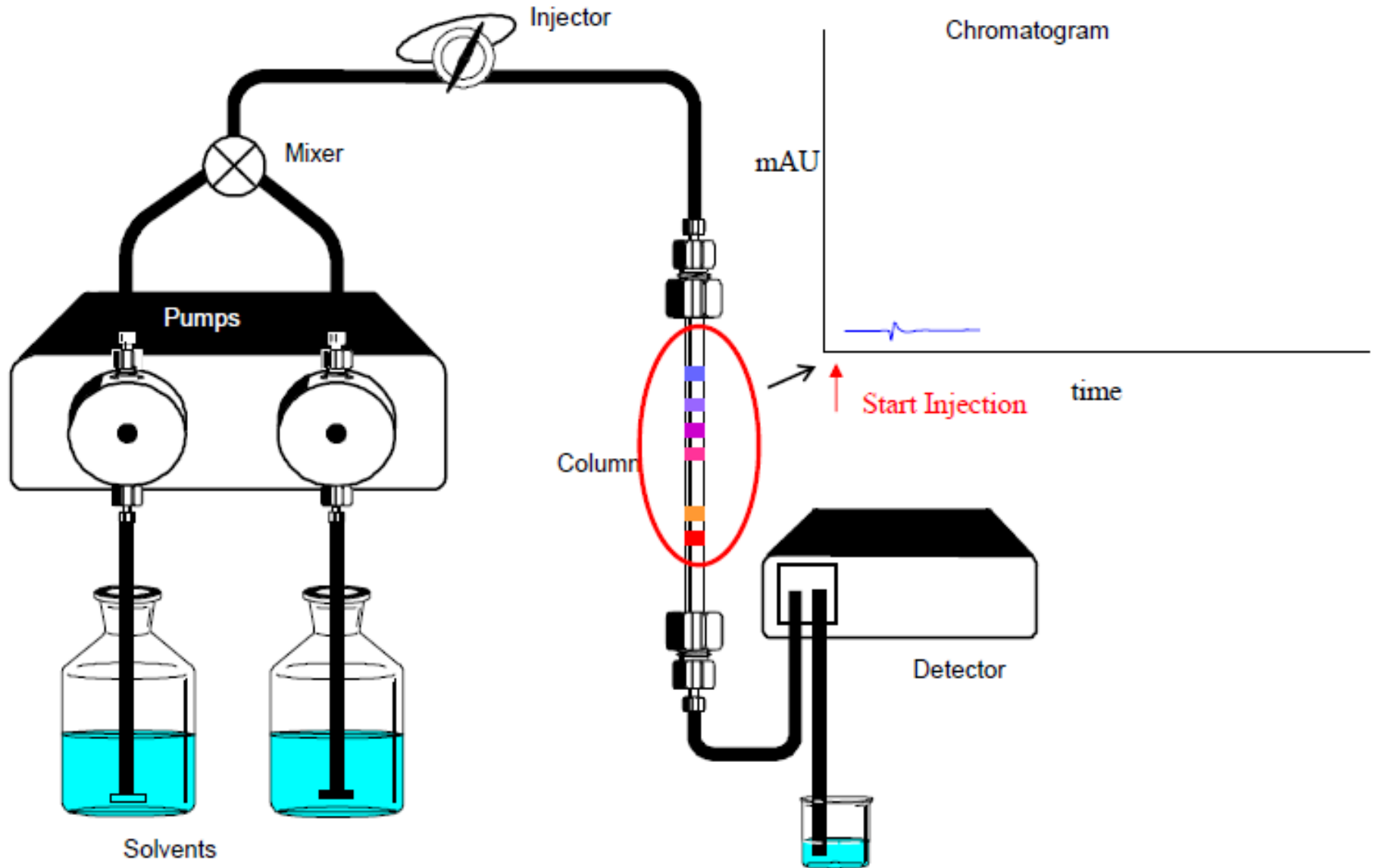
- HPLC



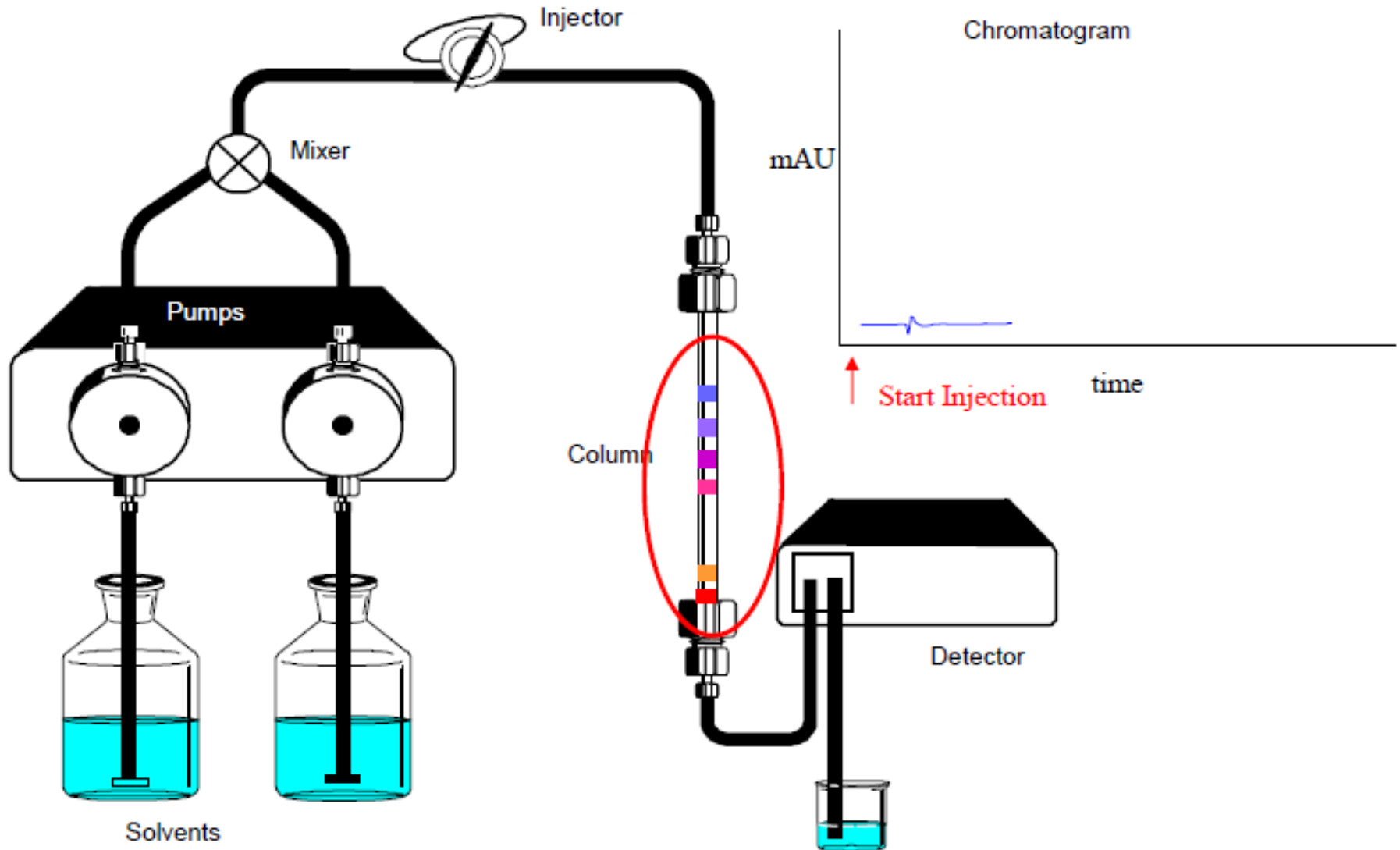
- HPLC



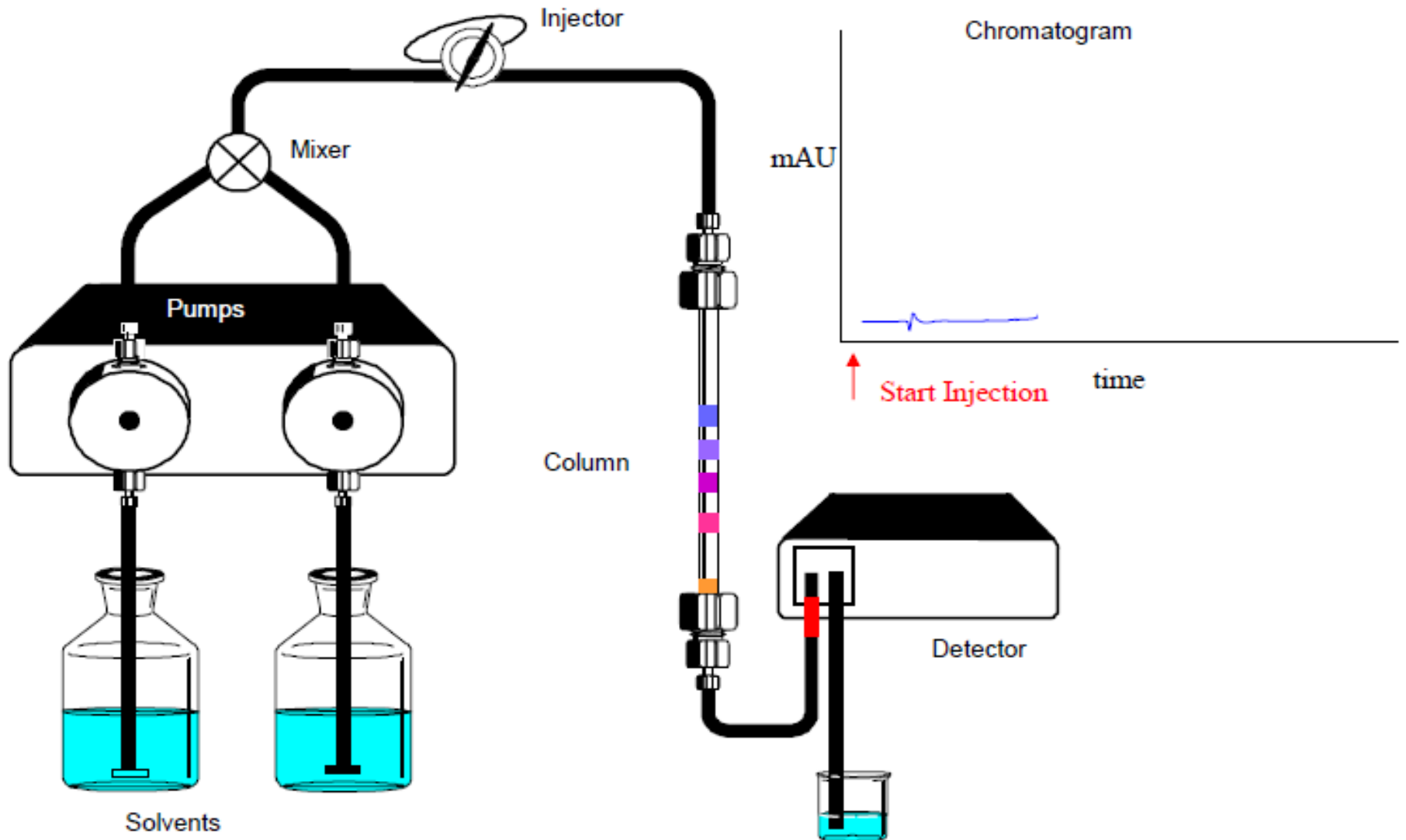
- HPLC



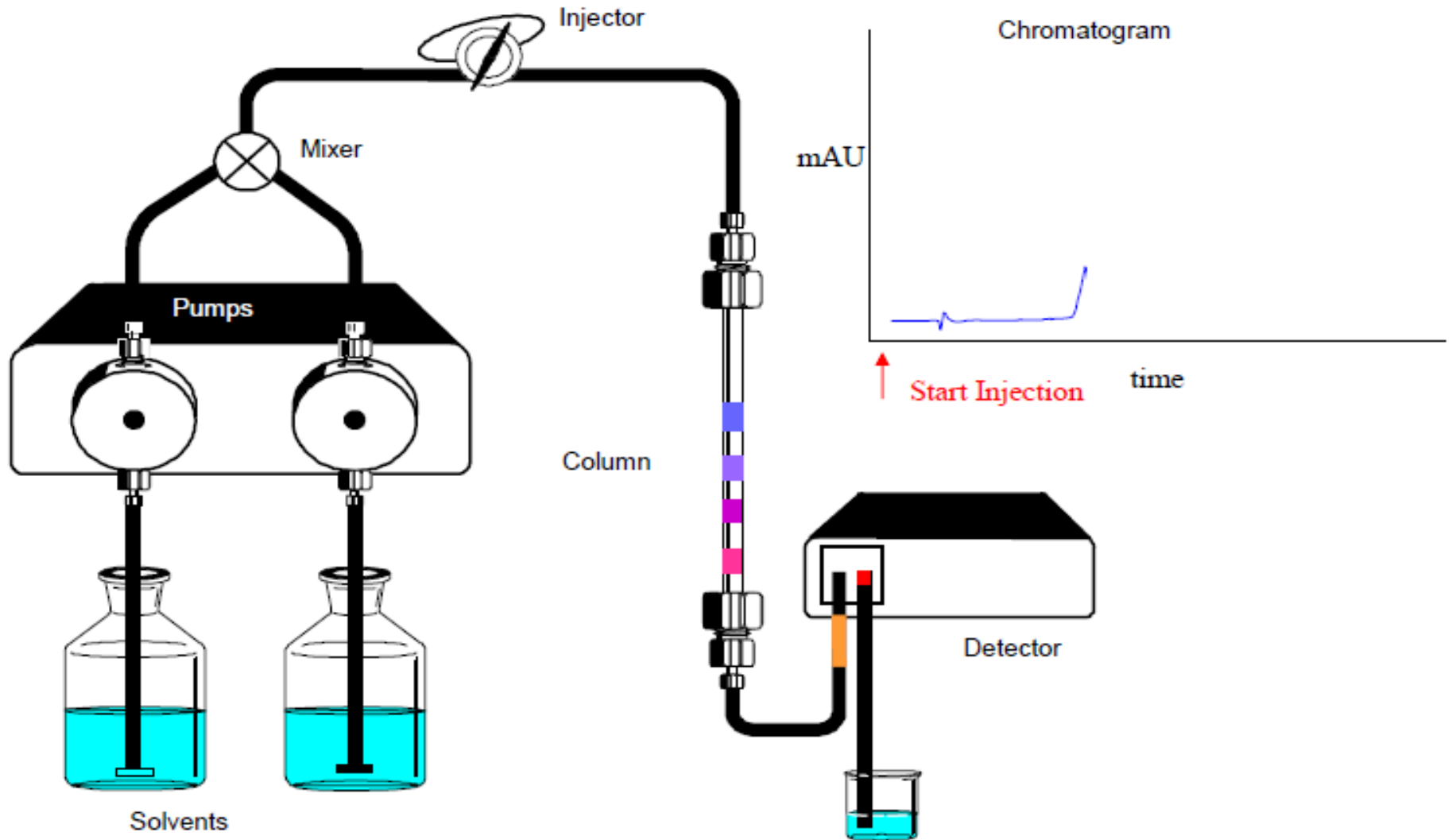
- HPLC



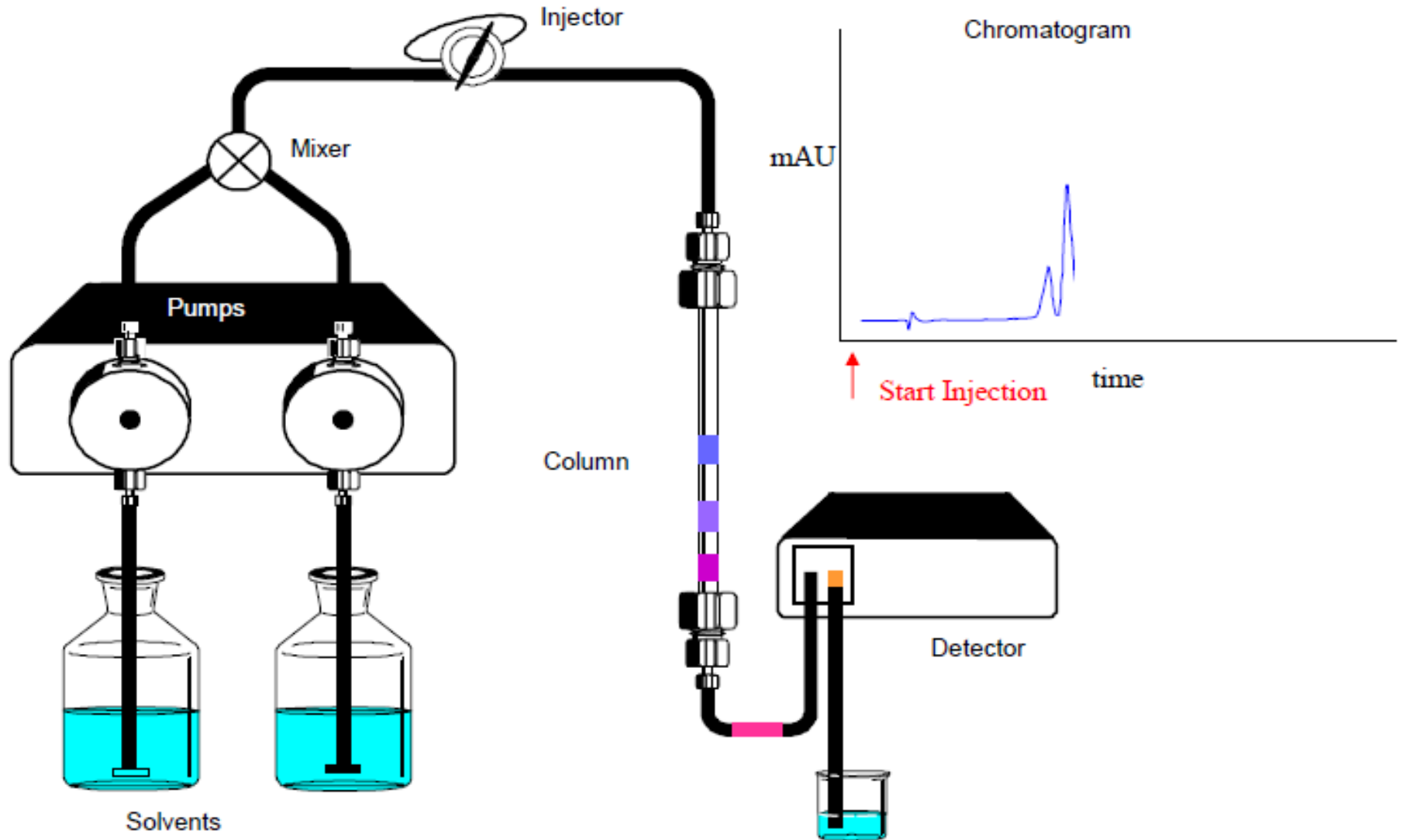
- HPLC



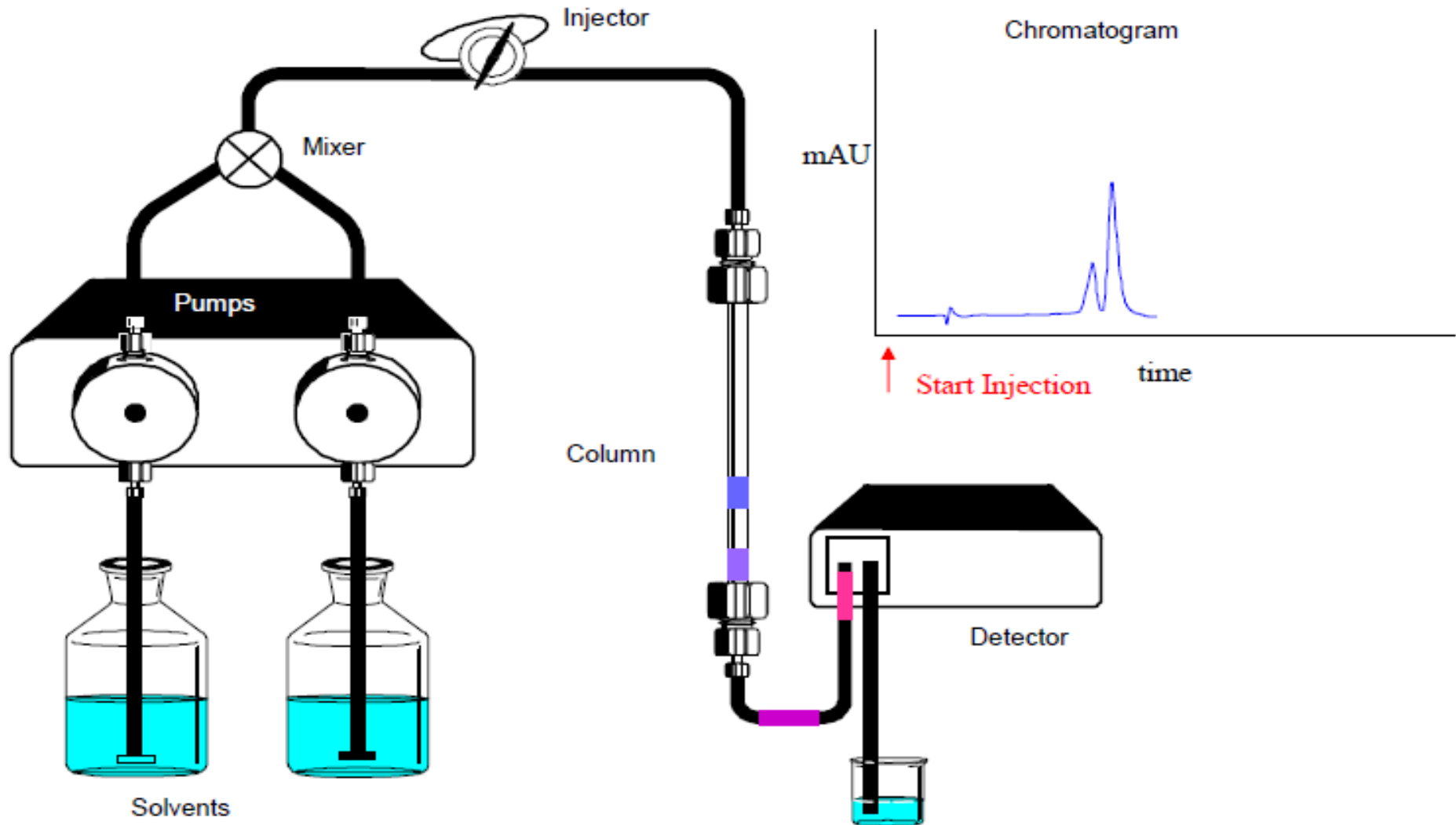
- HPLC



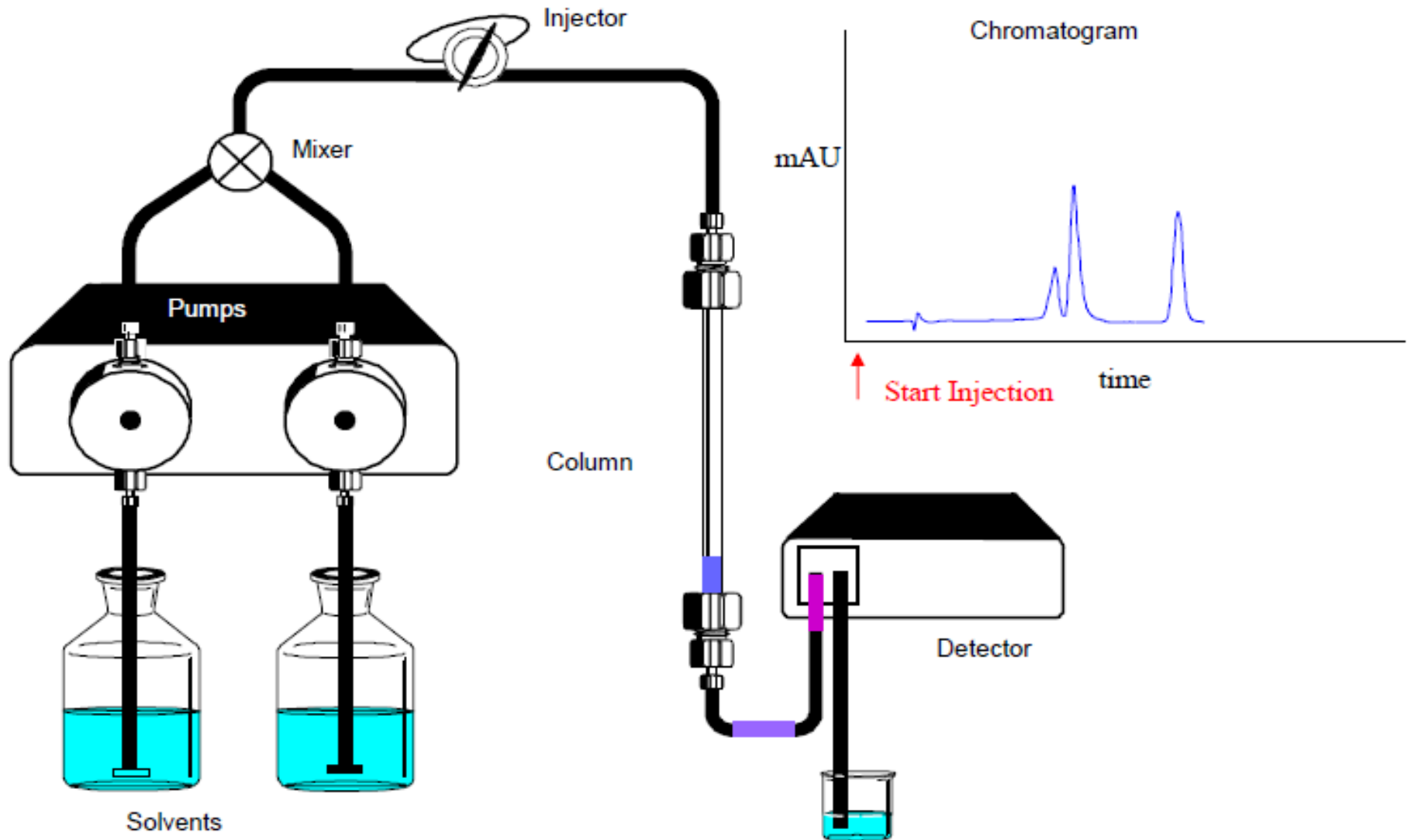
- HPLC



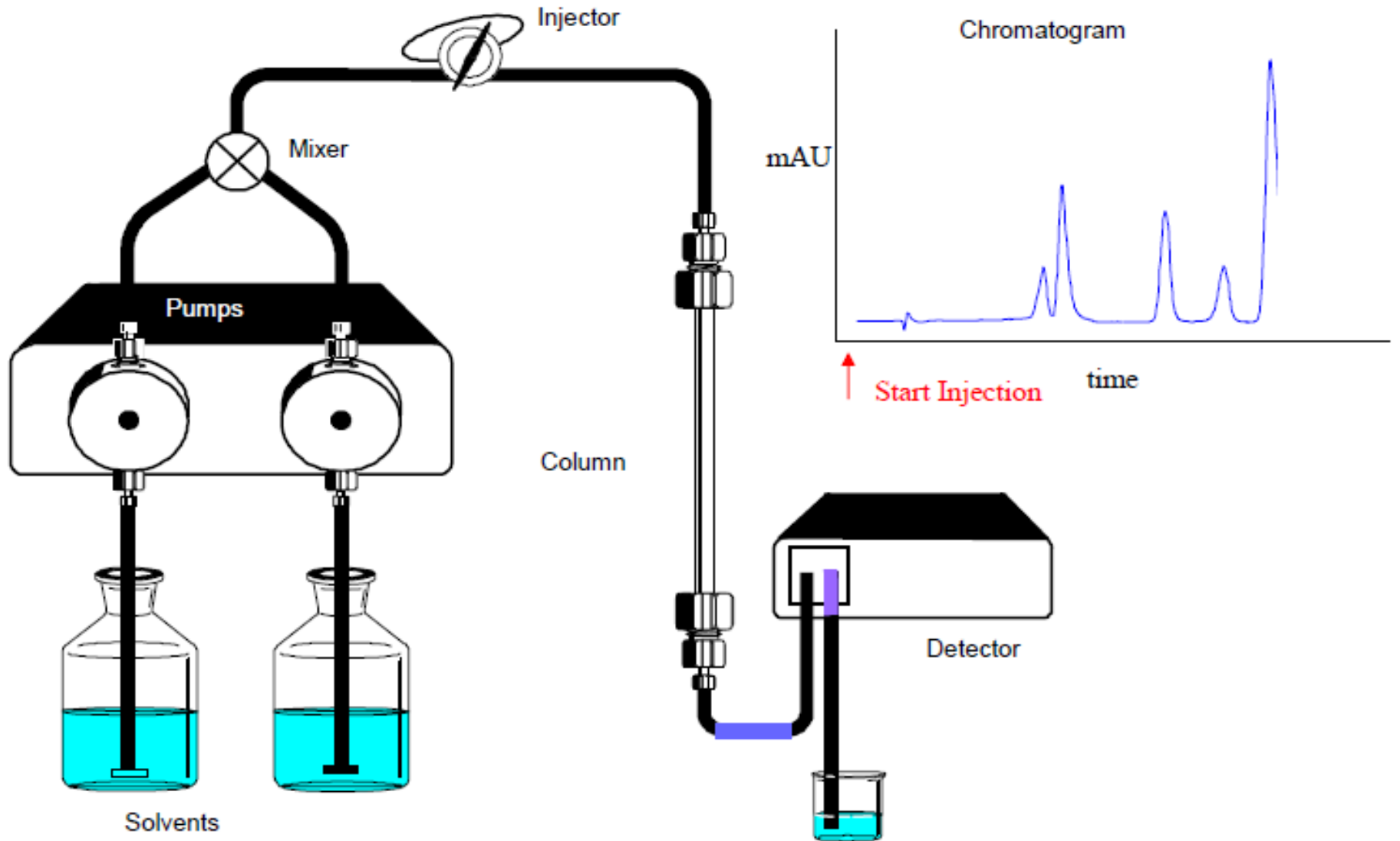
- HPLC



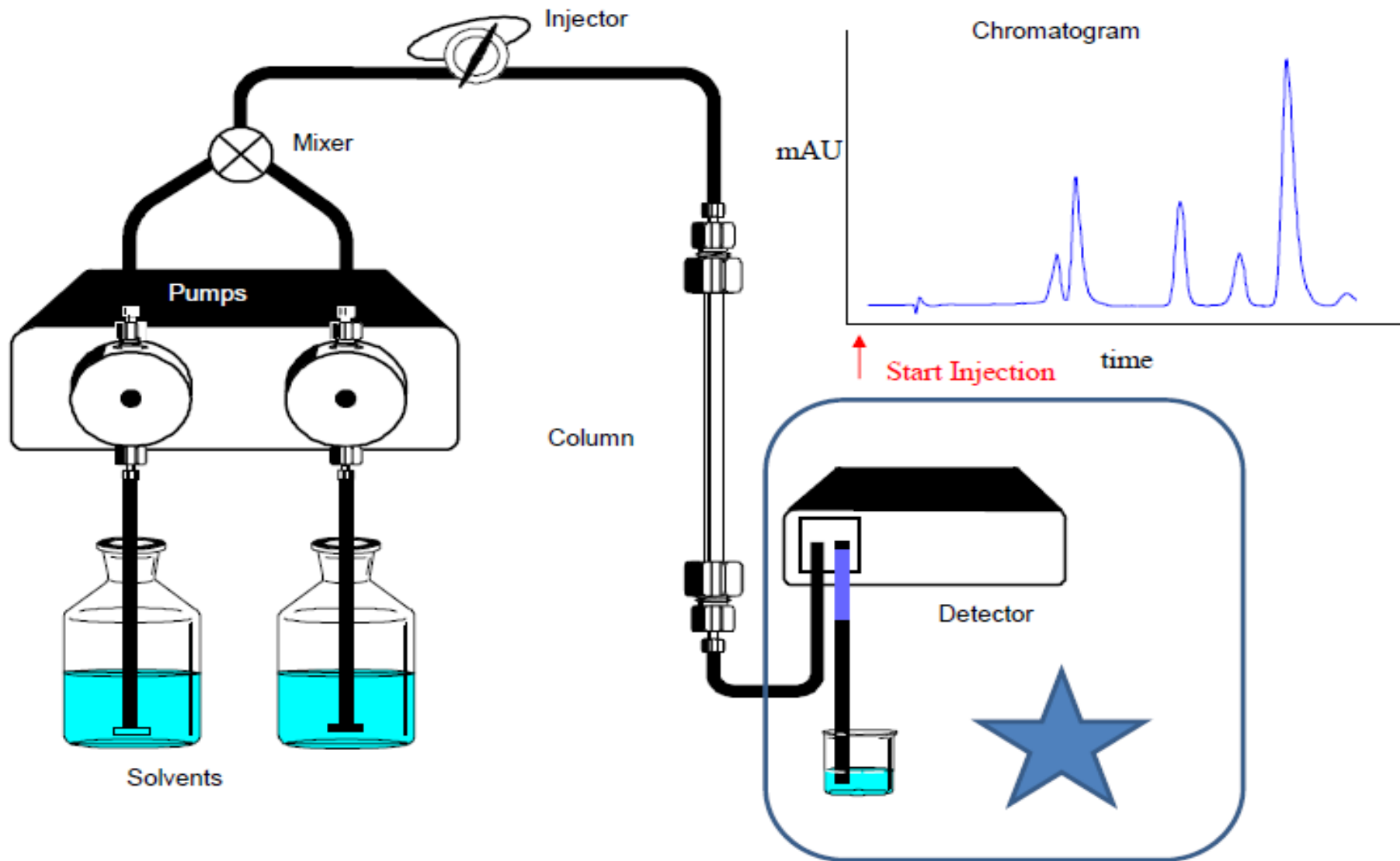
- HPLC



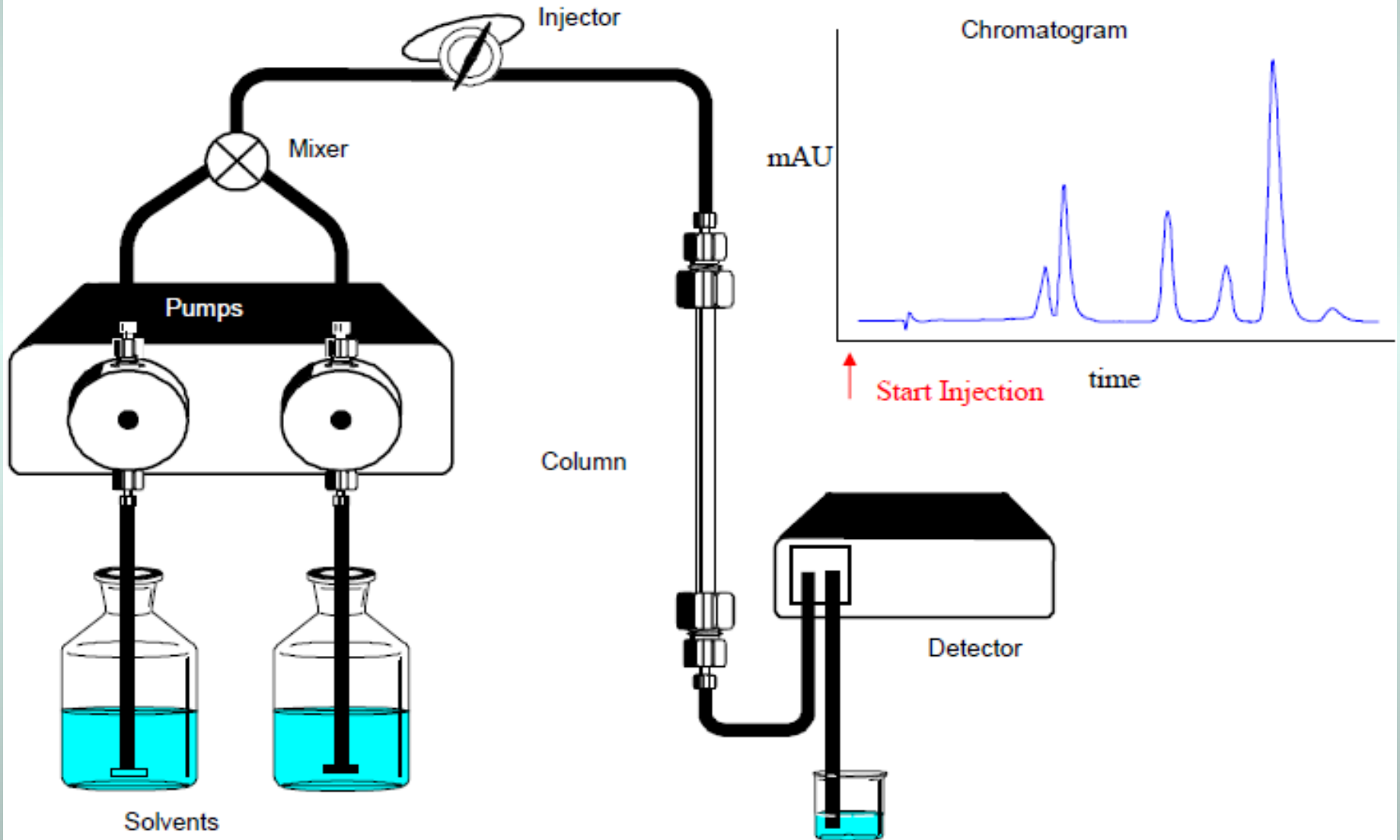
- HPLC



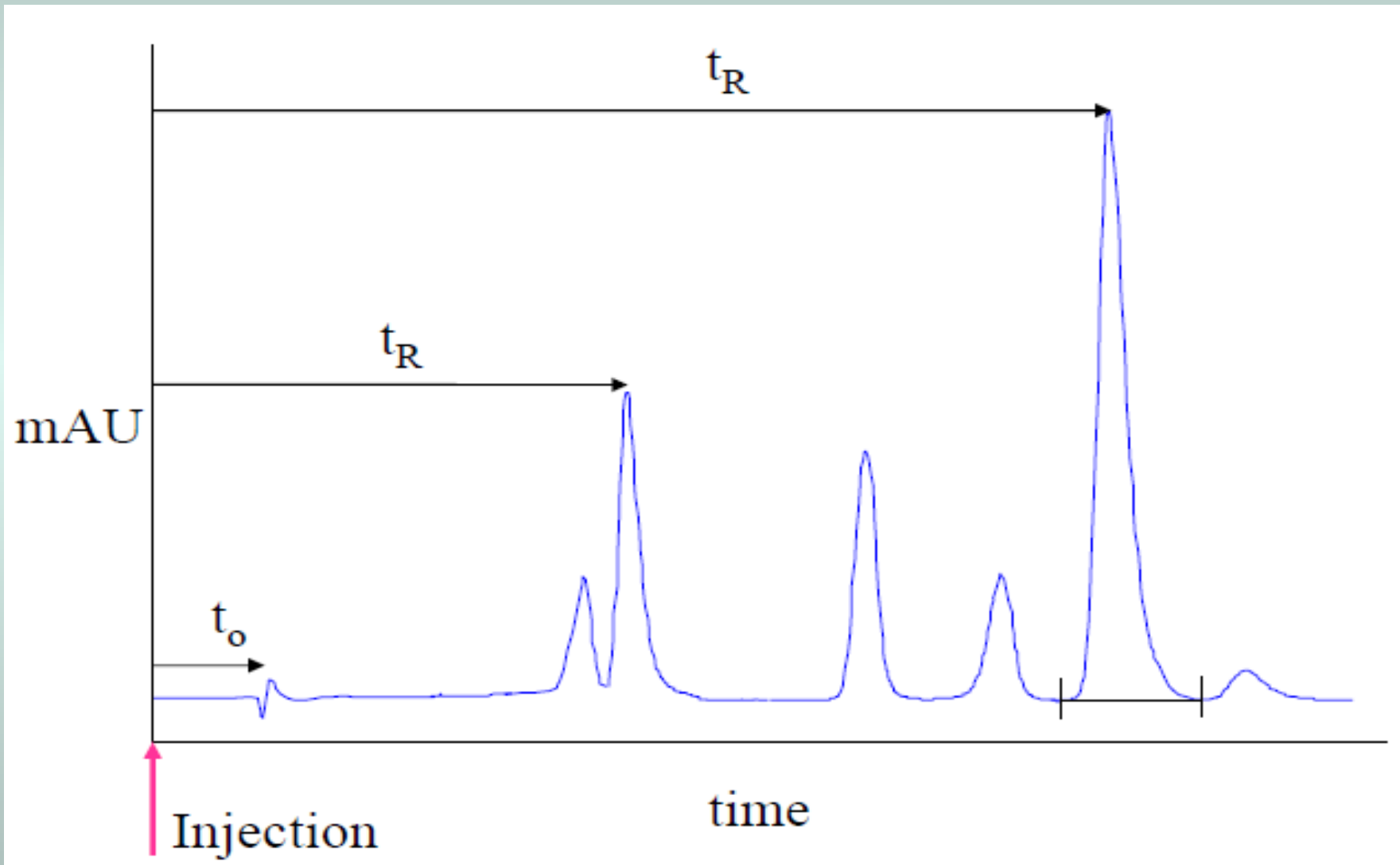
• HPLC



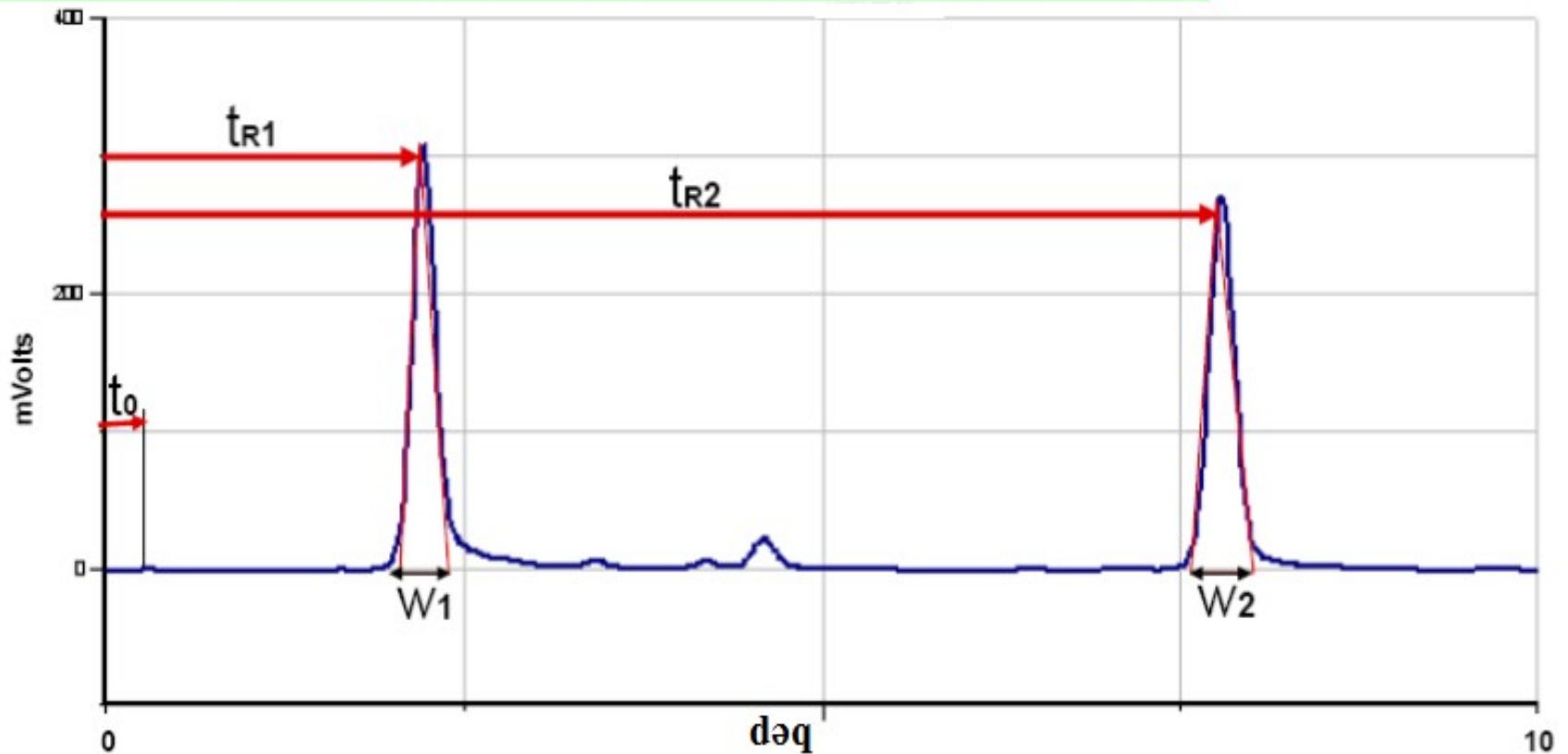
- HPLC



- Saxlanma müddəti



Əsas parametrlər – k , α , N , R_s



$$k = \frac{t_{Ri} - t_0}{t_0}$$

Saxlanma əmsali

$$\alpha = \frac{k_2}{k_1}$$

Selektivlik

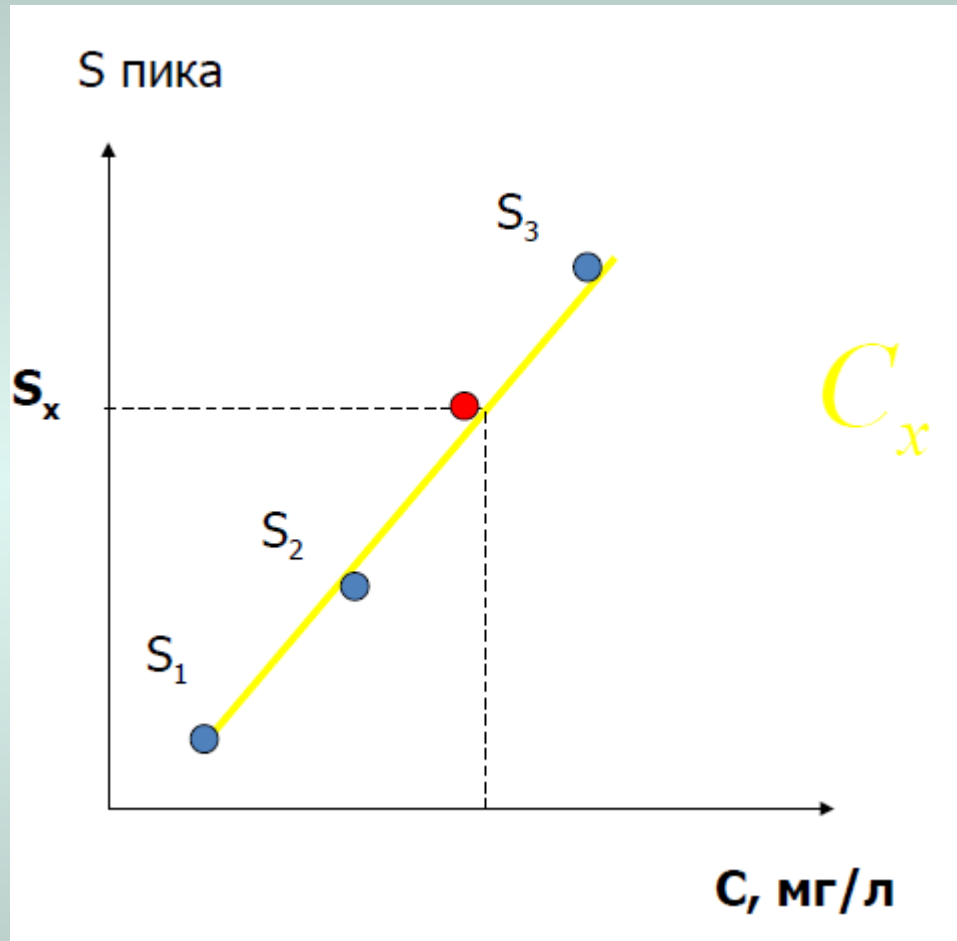
$$N = 16 \left(\frac{t}{W_i} \right)^2$$

Effektivlik
(nəzəri boşqab sayı)

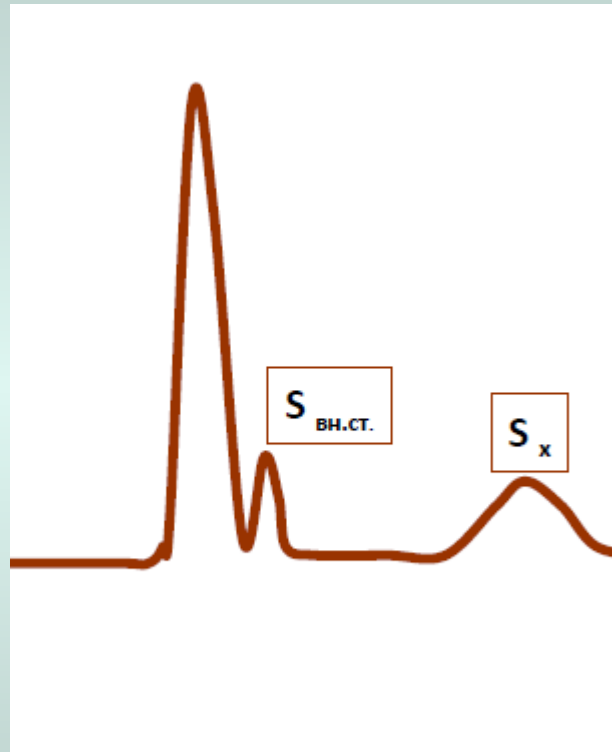
$$R_s = 0.25 (\alpha - 1) N^{0.5} \frac{k}{k + 1}$$

Keyfiyyət göstəricisi

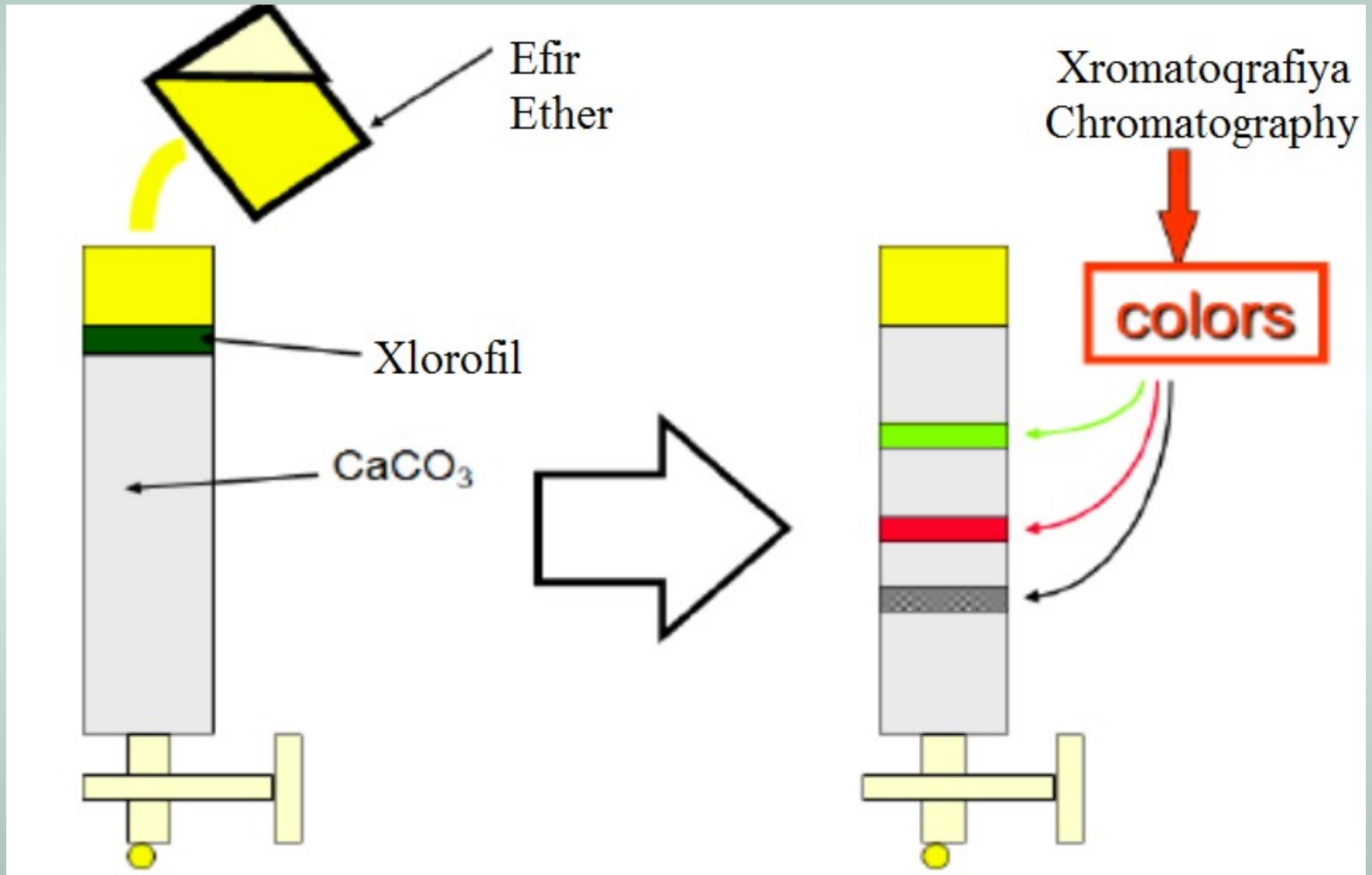
- Мүтләq kalibrләмә



- Daxili standart

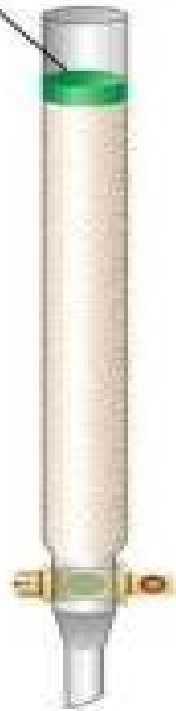


Sütunlu və ya boru xromatoqrafiyası



Sütunlu xromatografiya

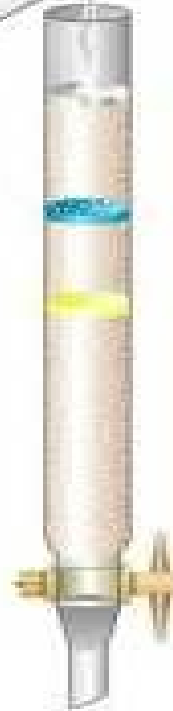
Substances to be separated dissolved in liquid



A



Pure liquid

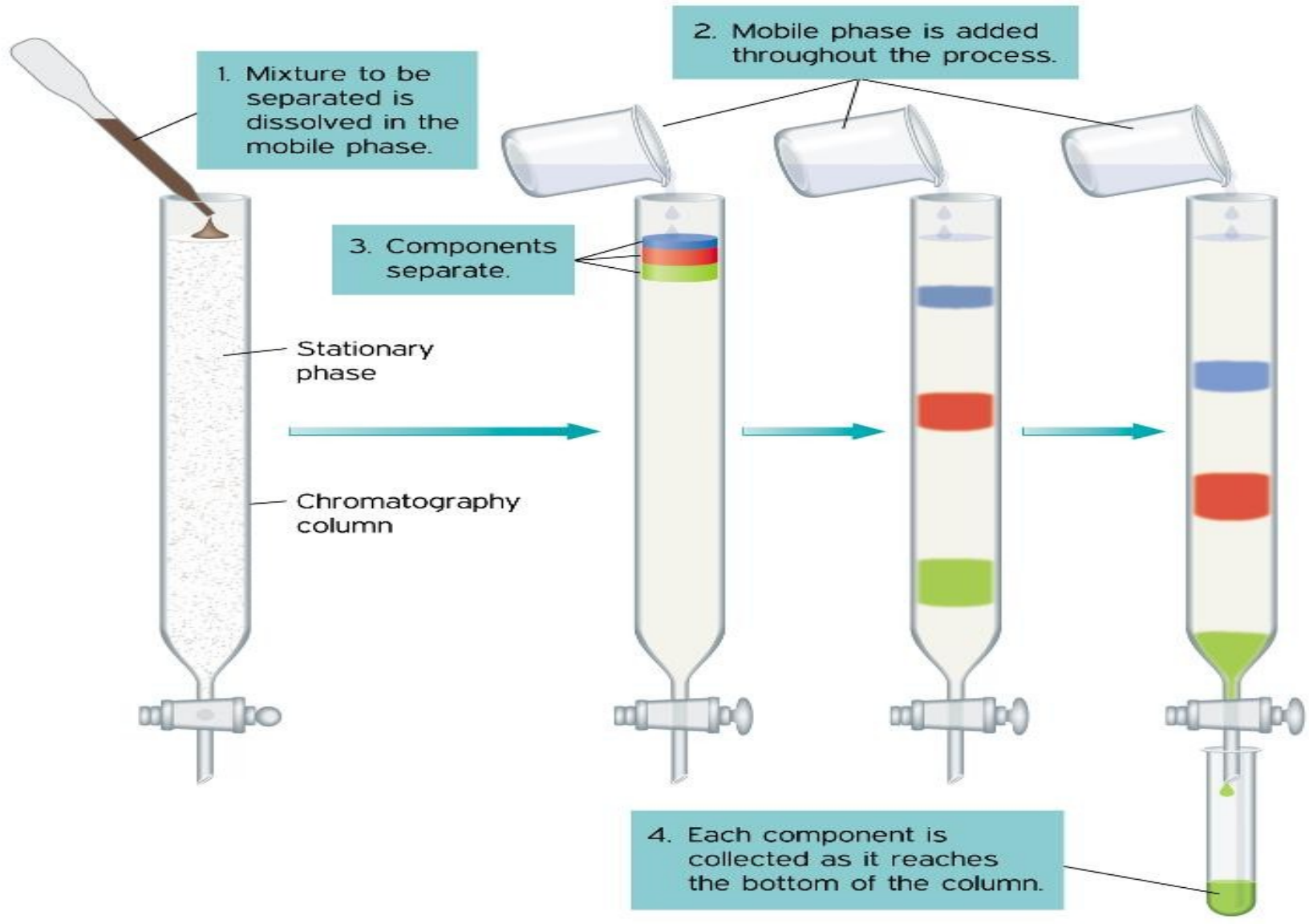


B

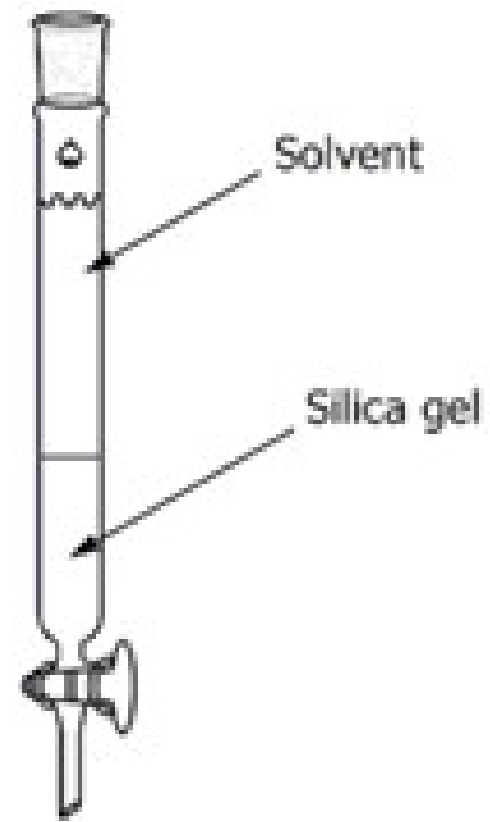


C





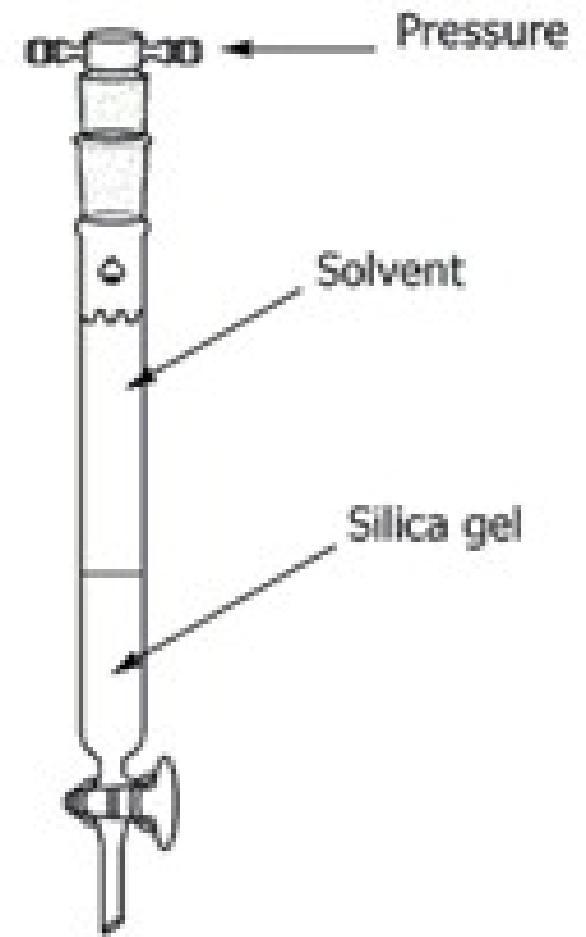
Standard column chromatography



Collection of fractions



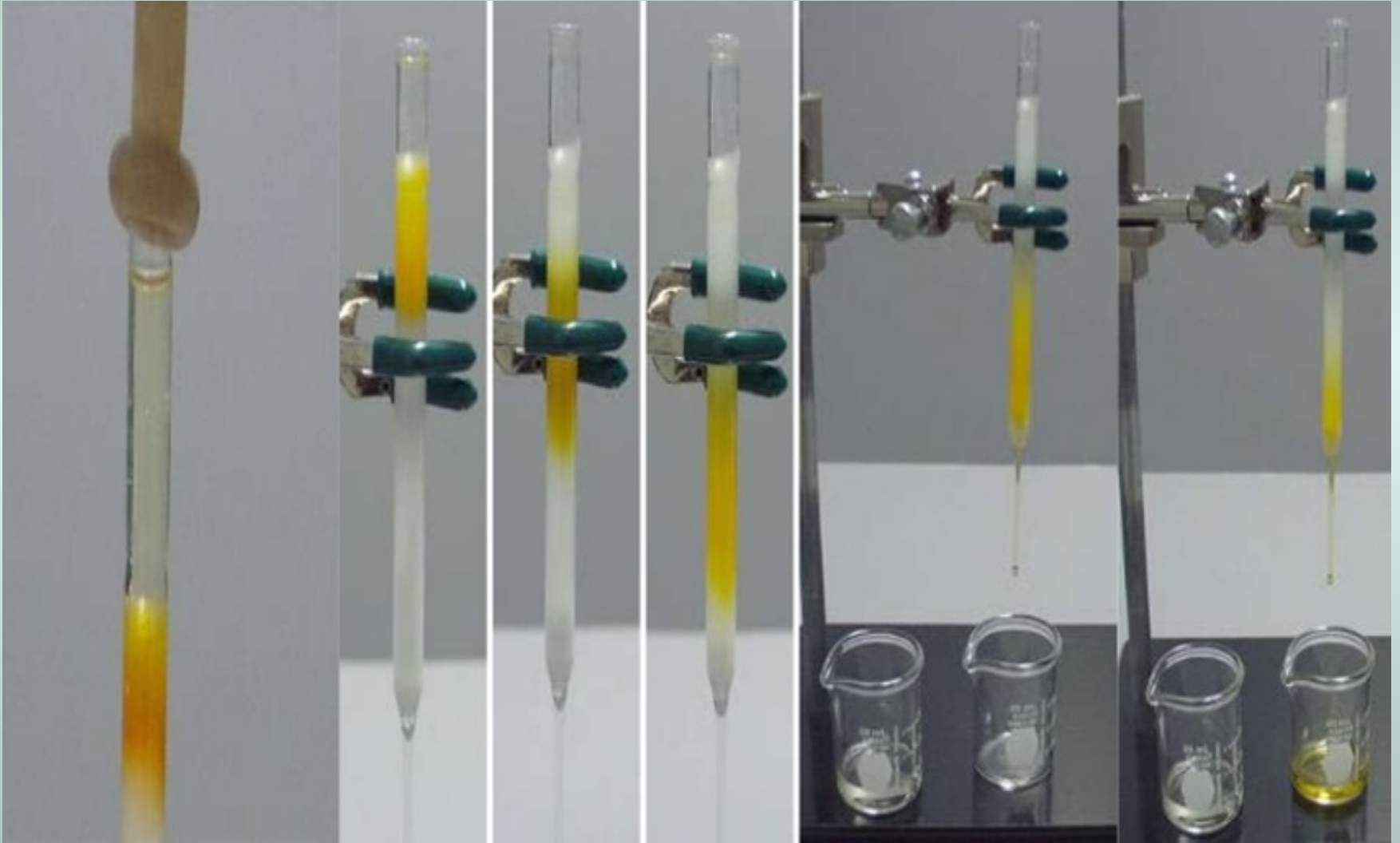
Flash column chromatography



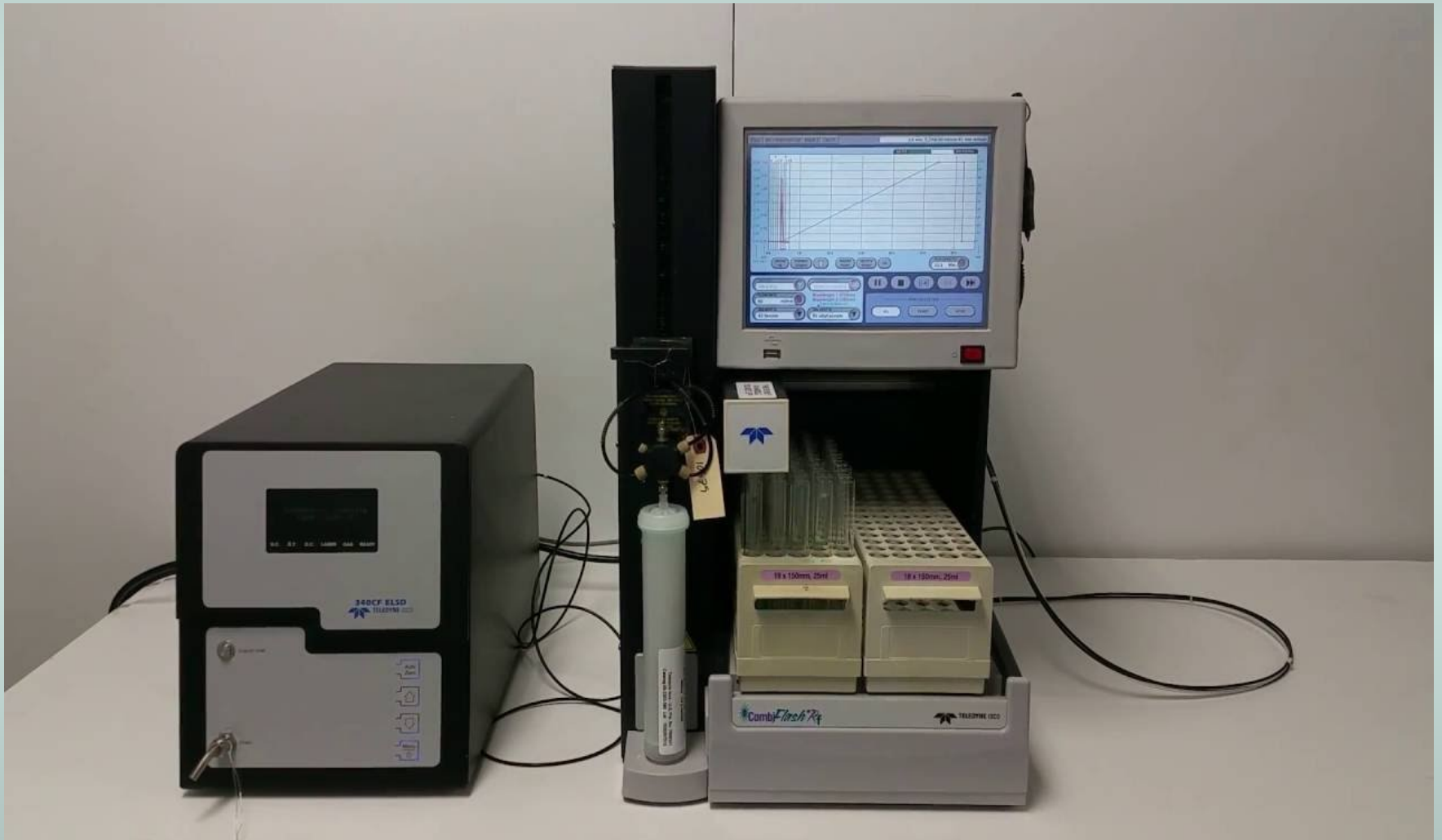
Collection of fractions



Sütunlu xromatoqrafiya



Fleş xromatoqrafiya



Fleş xromatografiyanın kolonkaları

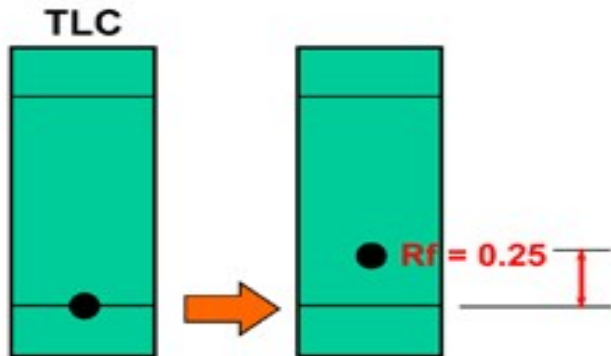


Fleş və NTX

Fig.1

Correlation between TLC and Column Chromatography

Equivalent to R_f 0.25 solvent strength to run TLC



In column chromatography

