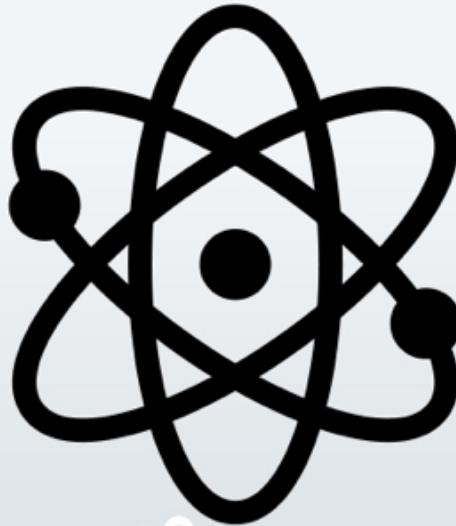


High-performance Liquid Chromatography



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Objectives:



Define HPLC



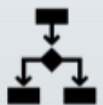
List components of HPLC



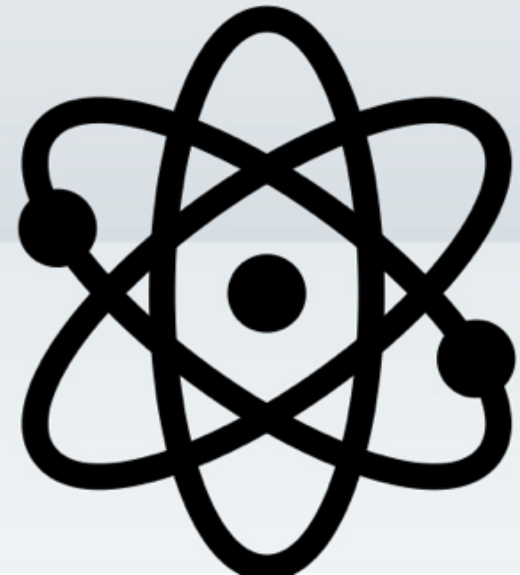
List type of HPLC separations



Mention the use of HPLC



List advantage & disadvantage of HPLC

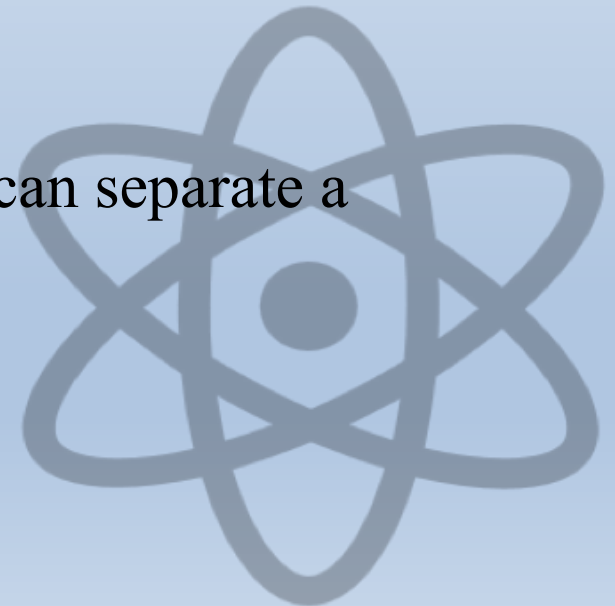


Define HPLC

HPLC stands for “High-performance liquid chromatography”.

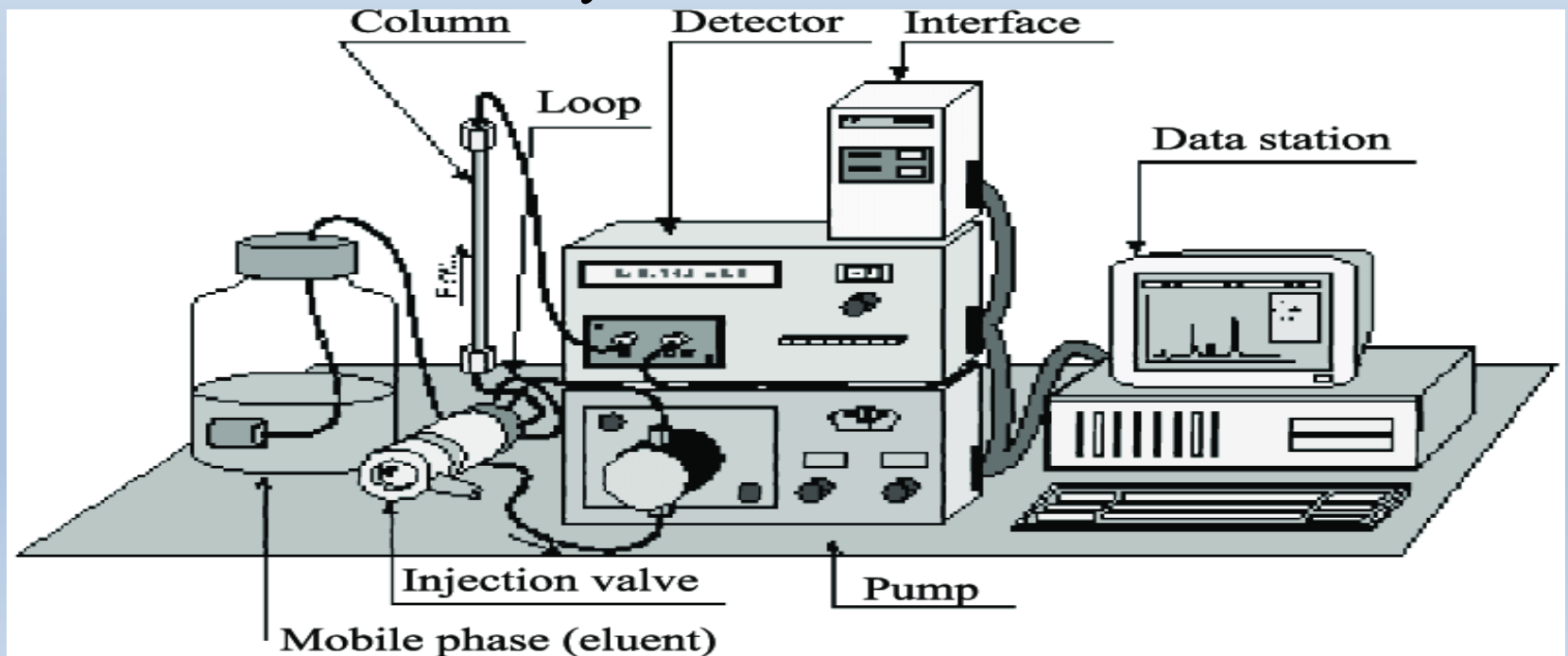
High performance liquid chromatography is a powerful tool in analysis, it yields high performance and high speed compared to traditional columns chromatography because of the forcibly pumped mobile phase

HPLC is a chromatographic technique that can separate a mixture of compounds



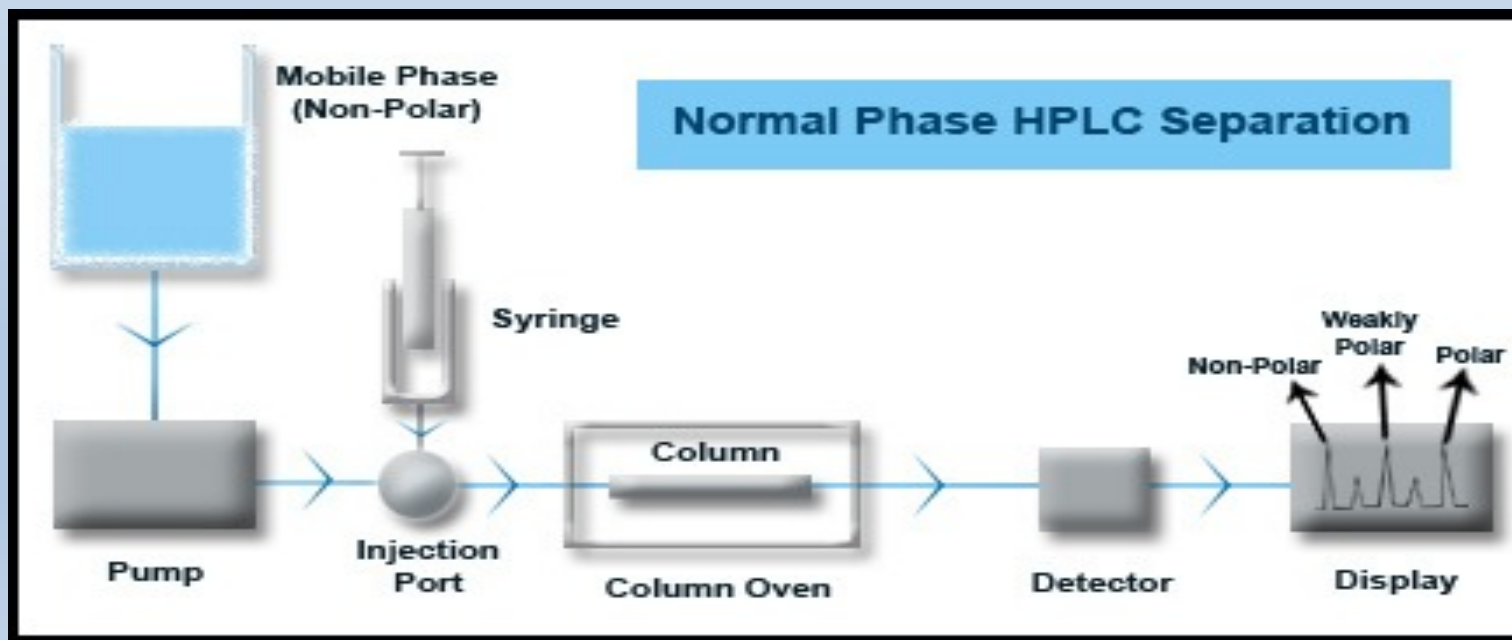
List components of HPLC

- ✓ Pump
- ✓ Injector
- ✓ Column
- ✓ Detector
- ✓ Recorder or data system

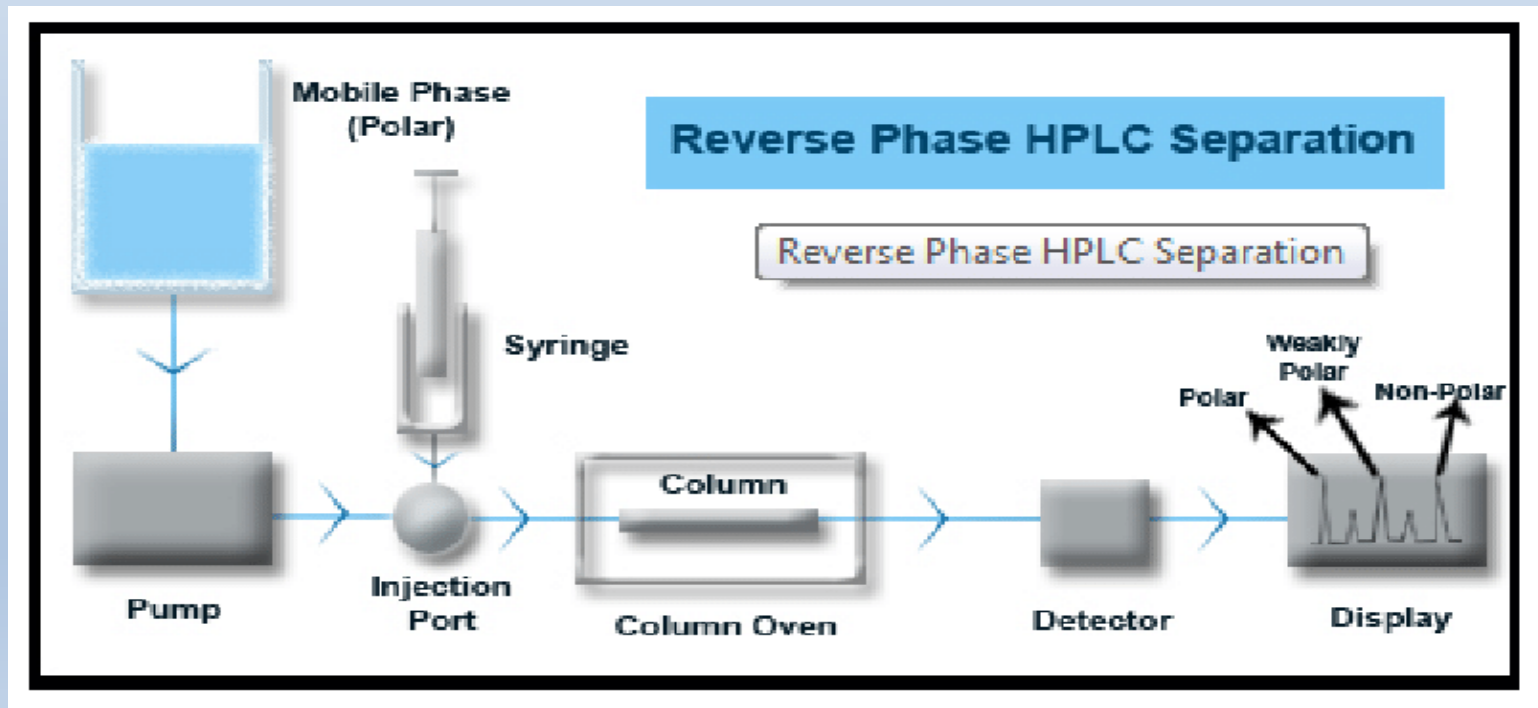


List type of HPLC separations

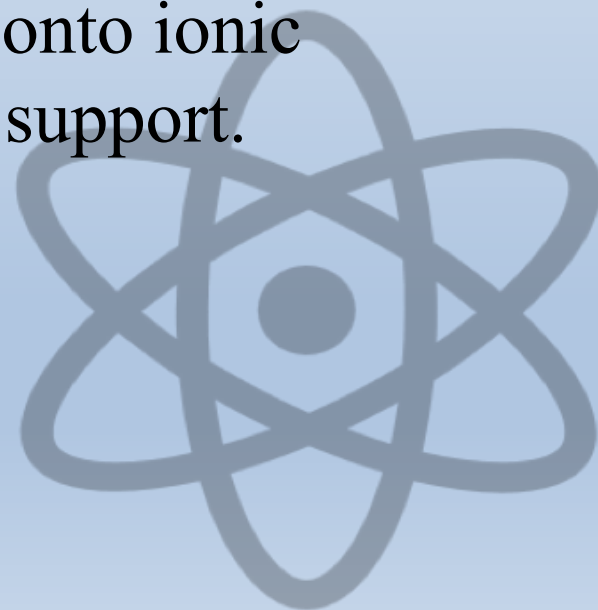
◆ **Normal Phase:** Separation of polar analytes by partitioning onto a polar, bonded stationary phase.



- ◆ Reversed Phase: Separation of non-polar analytes by partitioning onto a non-polar, bonded stationary phase.



- ◆ Adsorption: In Between Normal and Reversed. Separation of moderately polar analytes using adsorption onto a pure stationary phase (e.g. alumina or silica)
- ◆ Ion Chromatography: Separation of organic and inorganic ions by their partitioning onto ionic stationary phases bonded to a solid support.



Mention why use HPLC

- High resolution
- High sensitivity
- Good repeatability
- Moderate analysis condition
- Not destructive

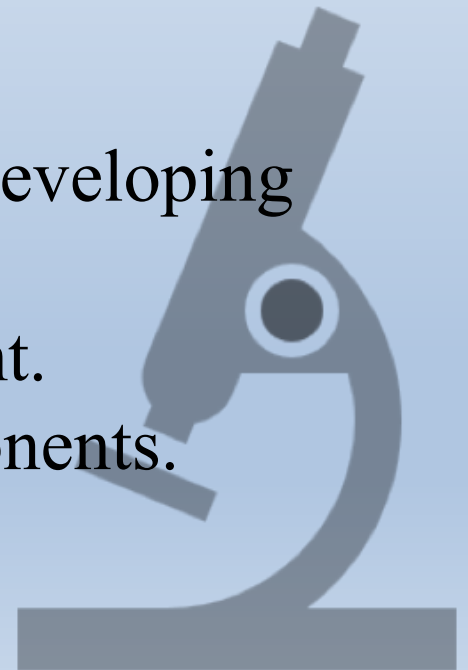




List advantage & disadvantage of
HPLC

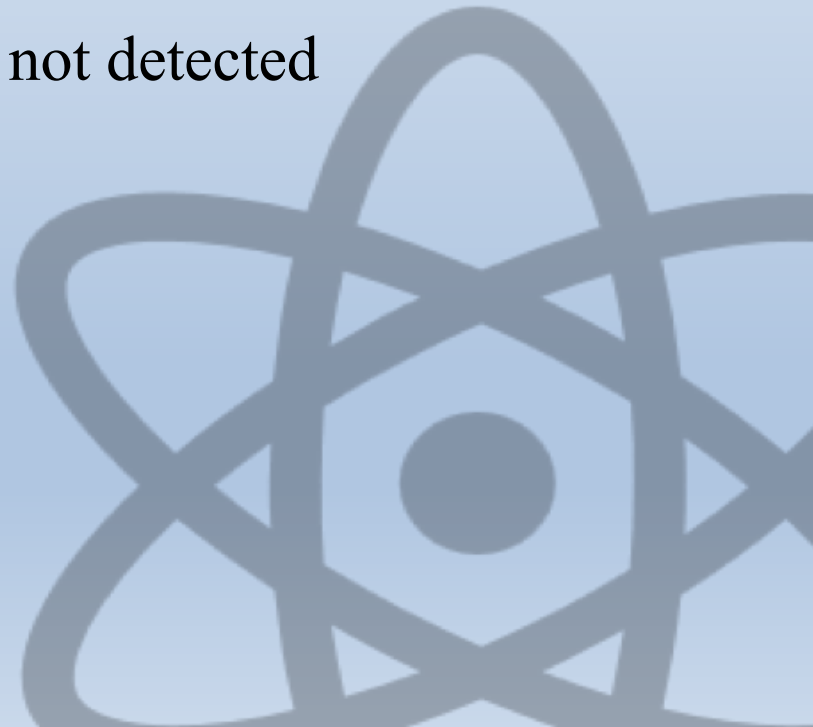
Advantage

- ❖ It is having a high resolution and separation capacity.
- ❖ Stationary phase was chemically inert.
- ❖ Wide varieties of stationary phase.
- ❖ Mobile phase was chemically inert.
- ❖ Less requirement of mobile phase in developing chamber.
- ❖ Early recovery of separated component.
- ❖ Easy visualization of separated components.



Disadvantage

- ❖ Cost
- ❖ Complexity
- ❖ Low sensitivity for some compounds
- ❖ Irreversibly adsorbed compounds not detected
- ❖ Co-elution difficult to detect



Summary

- HPLC stands for “High-performance liquid chromatography”.
- One of components of HPLC is recorder or data system.
- The normal Phase is Separation of polar analyzes.
- HPLC is used for Good repeatability , High resolution.
- It is having a high resolution and separation capacity.
- Low sensitivity for some compounds.

Reference

<https://www.slideshare.net/dbasuti/hplc-high-per>