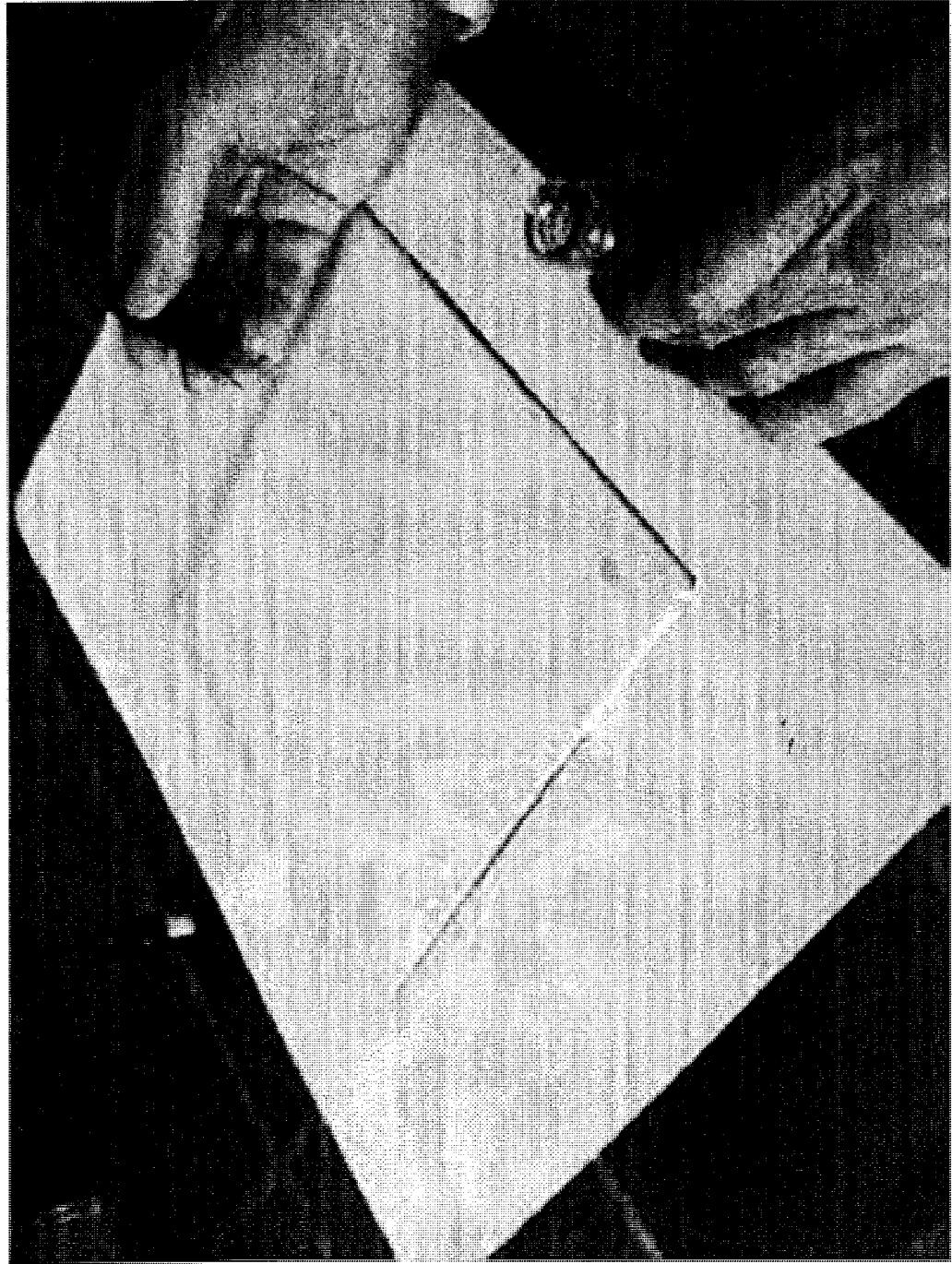


# Preparative TLC



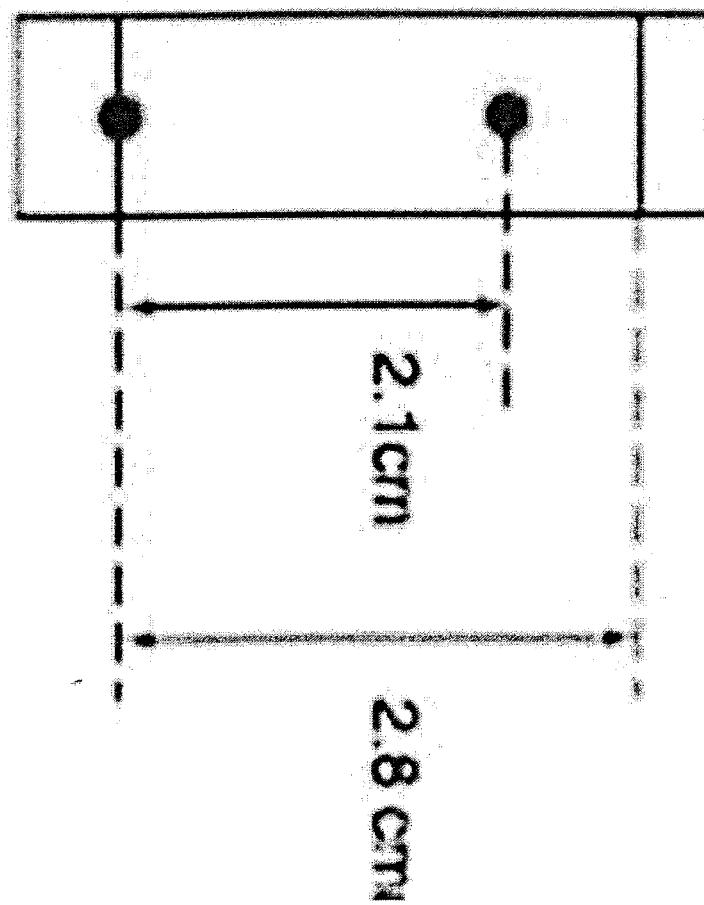
# R<sub>f</sub> Value

solvent front  
new position  
of compound

origin

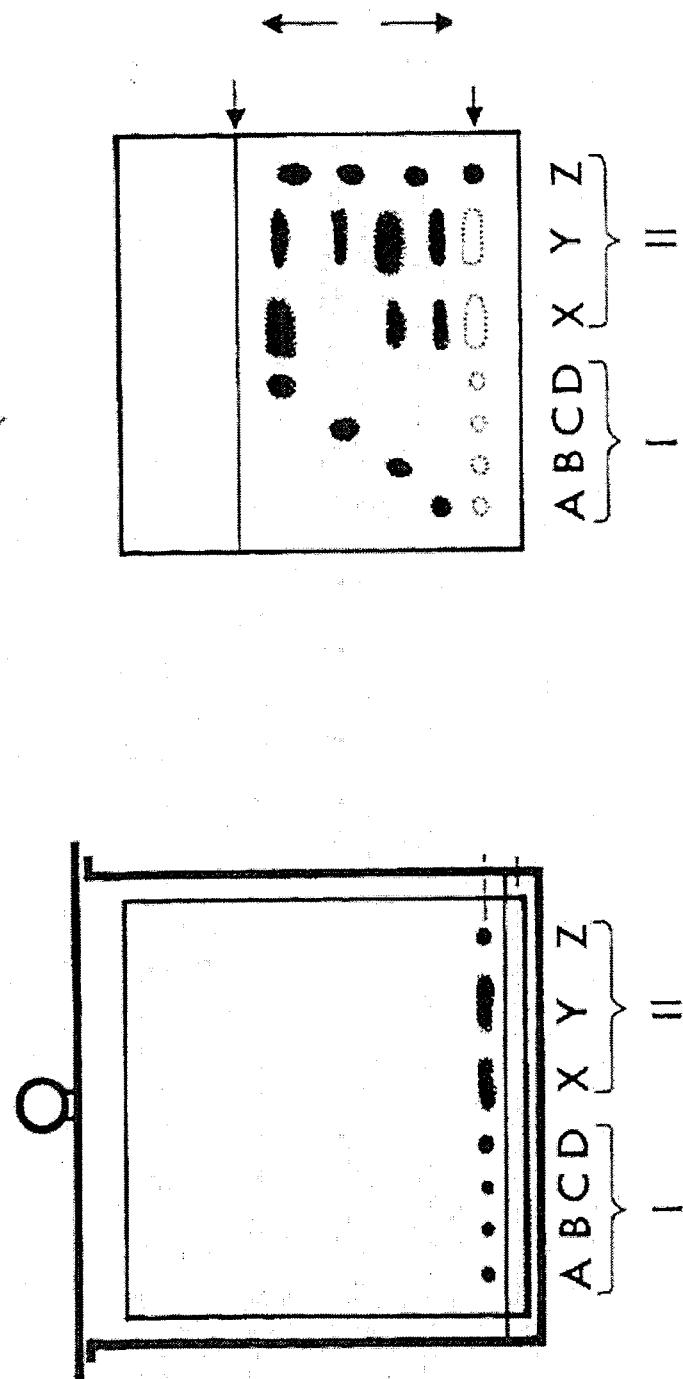
2.1 cm

2.8 cm

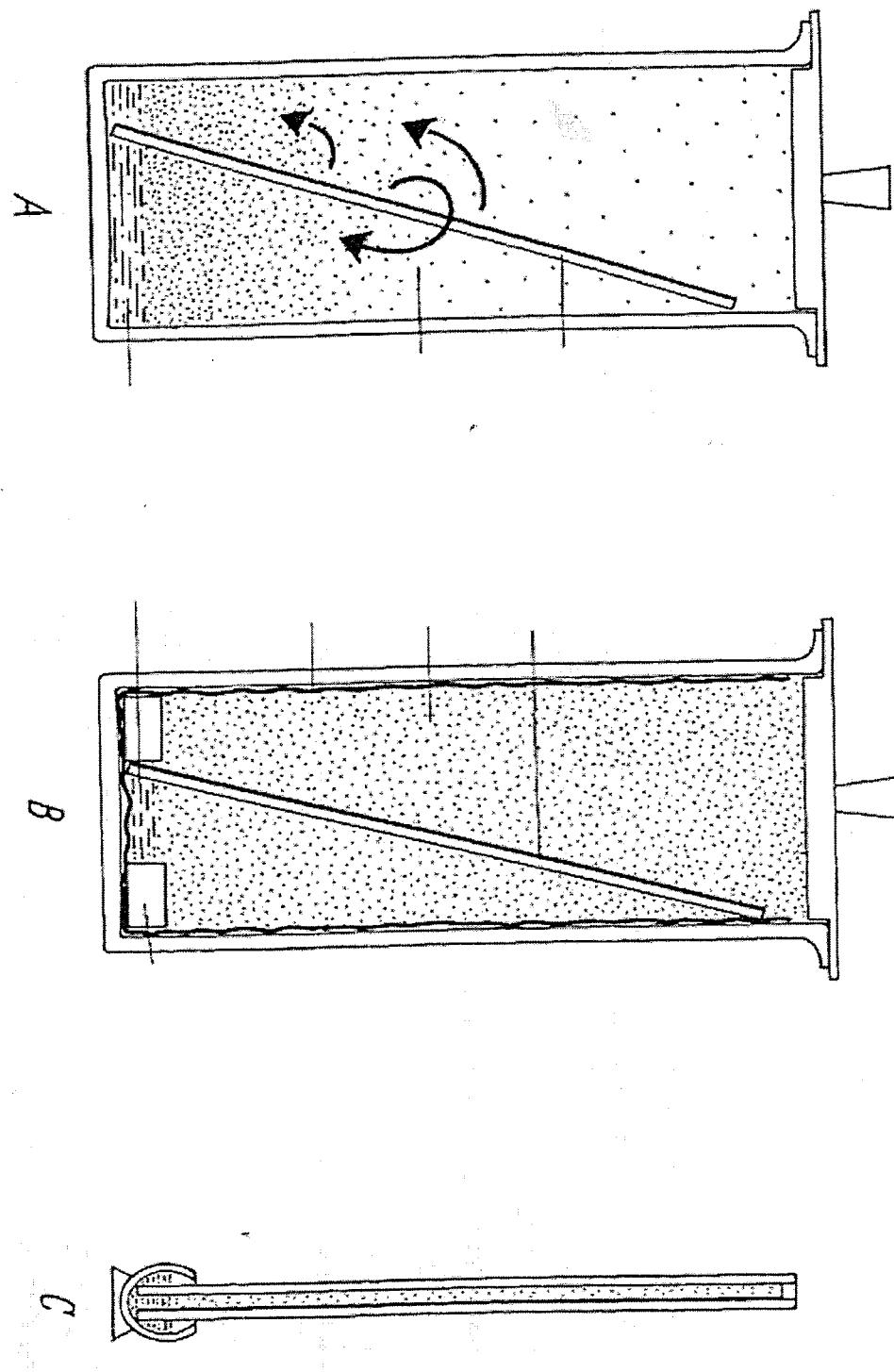


$$R_f = \frac{2.1}{2.8} = 0.75$$

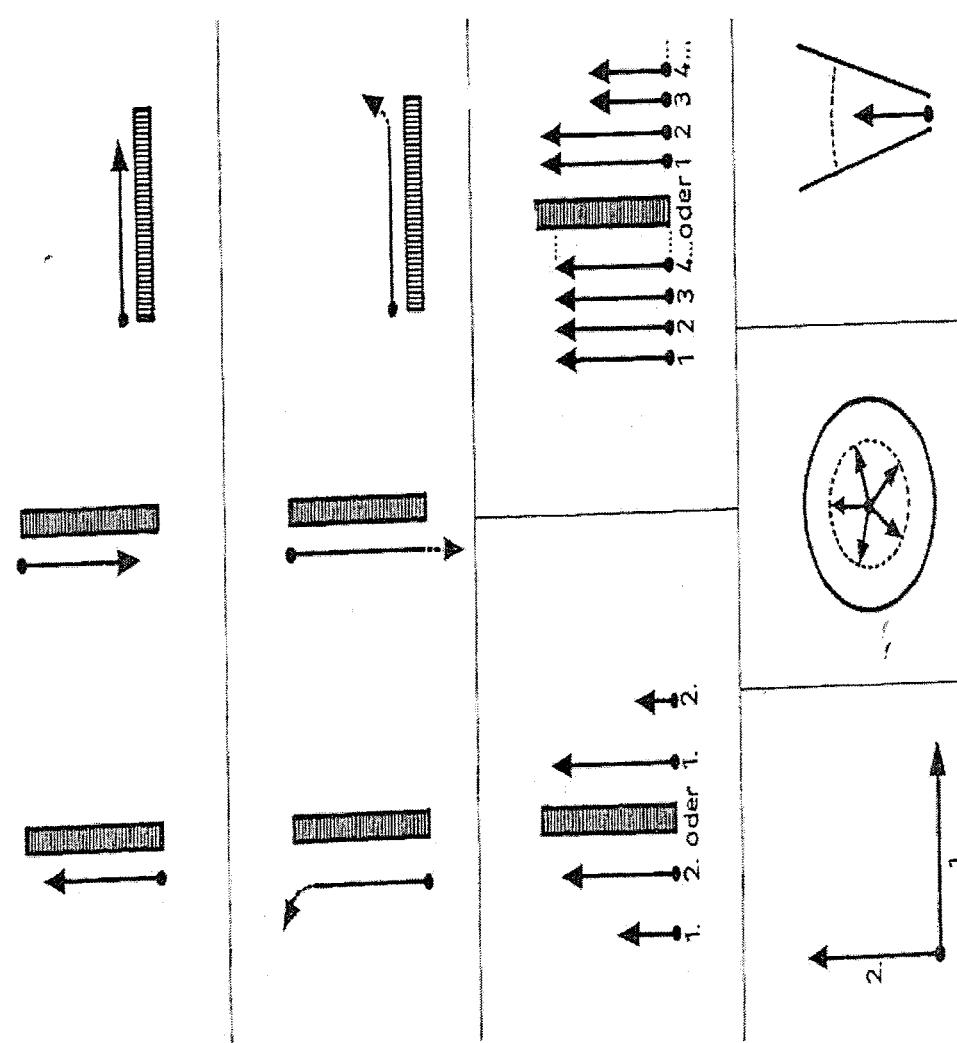
# TLC



# Saturation of the sink

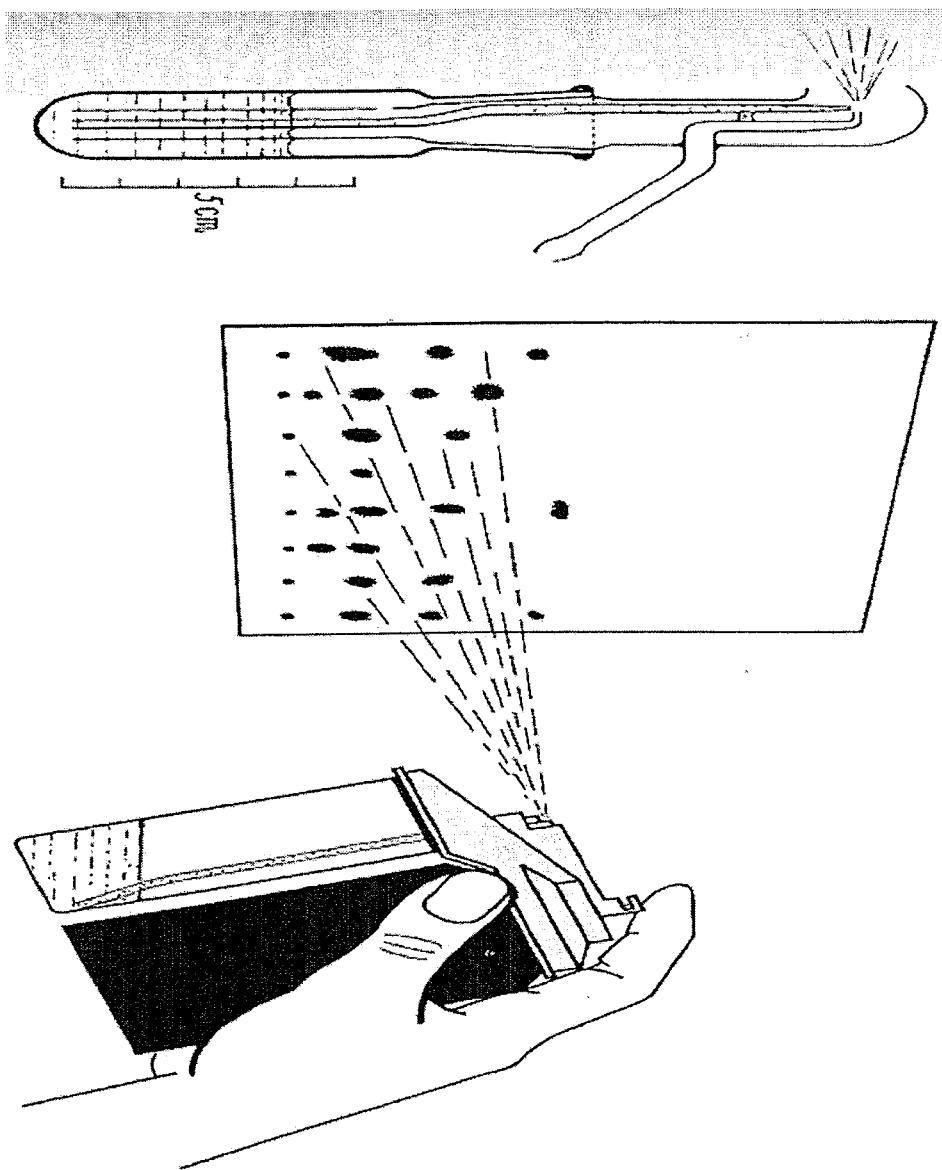


# Forms of TLC improvement

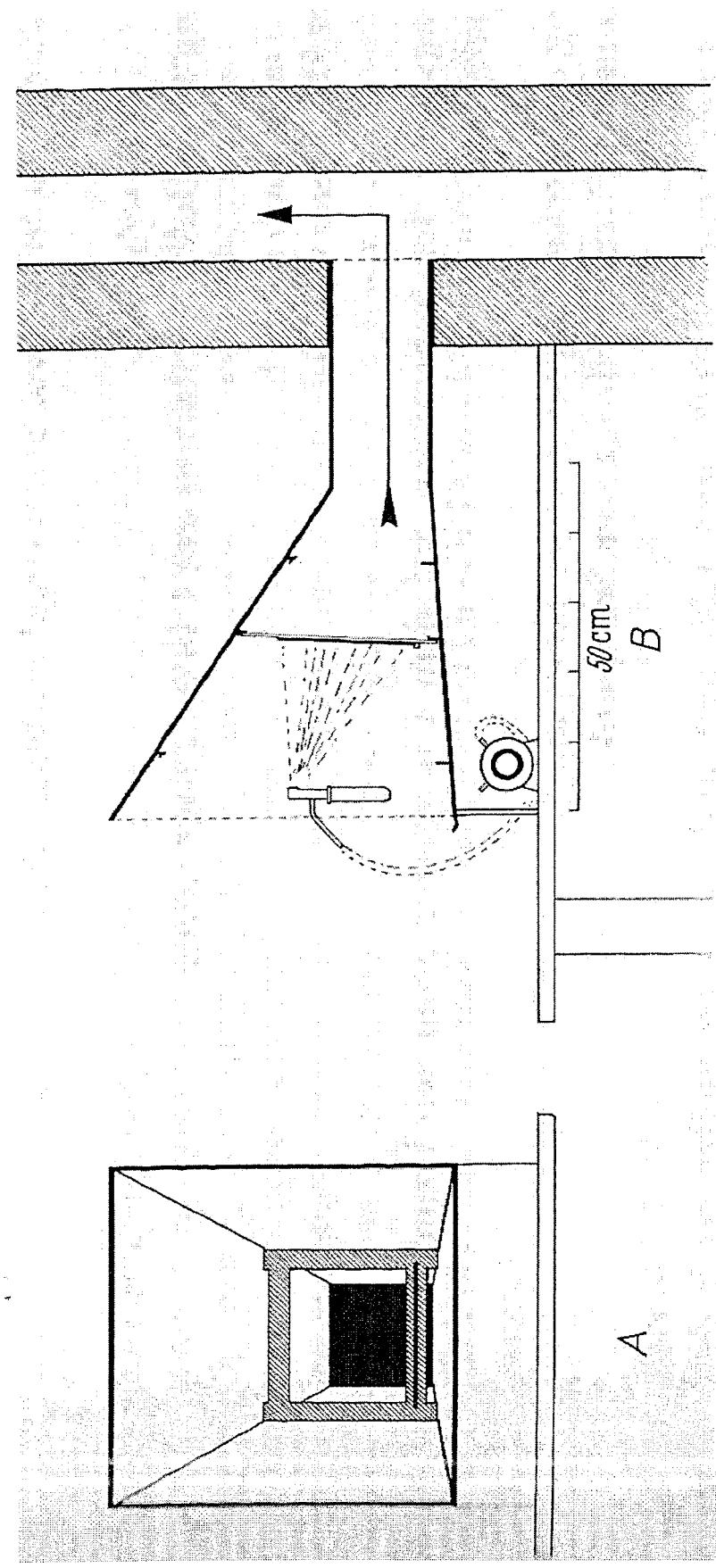


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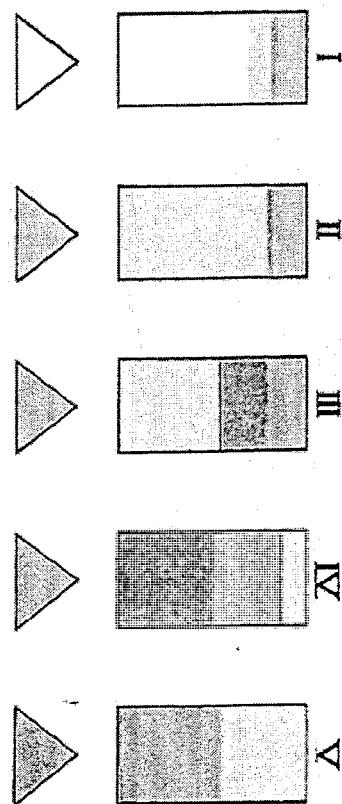
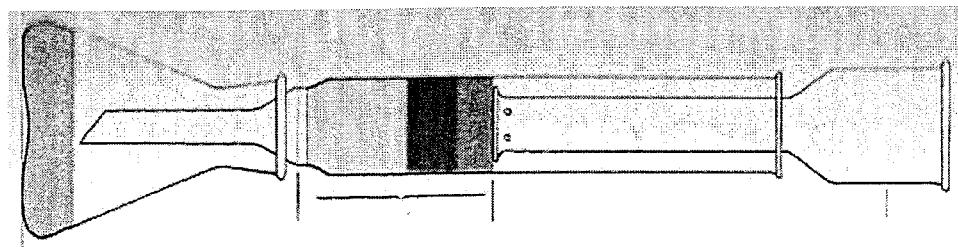
# Spraying



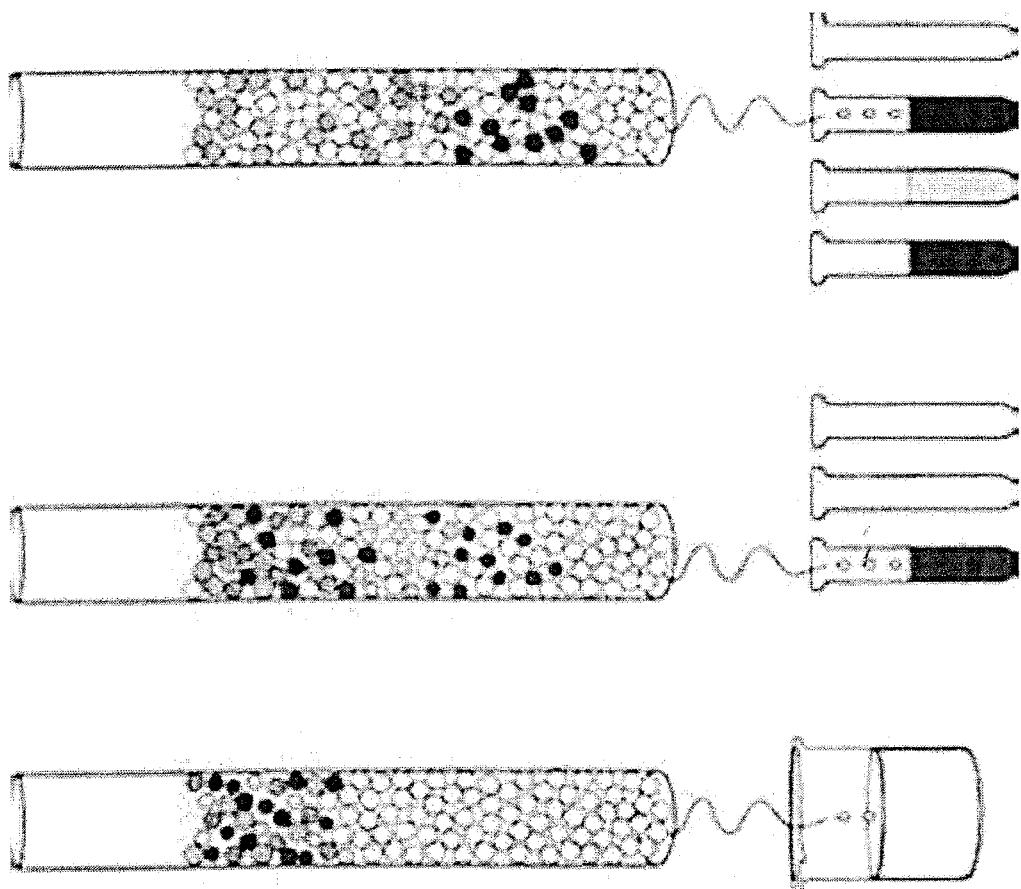
# Spraying under the Hood



# Chromatography

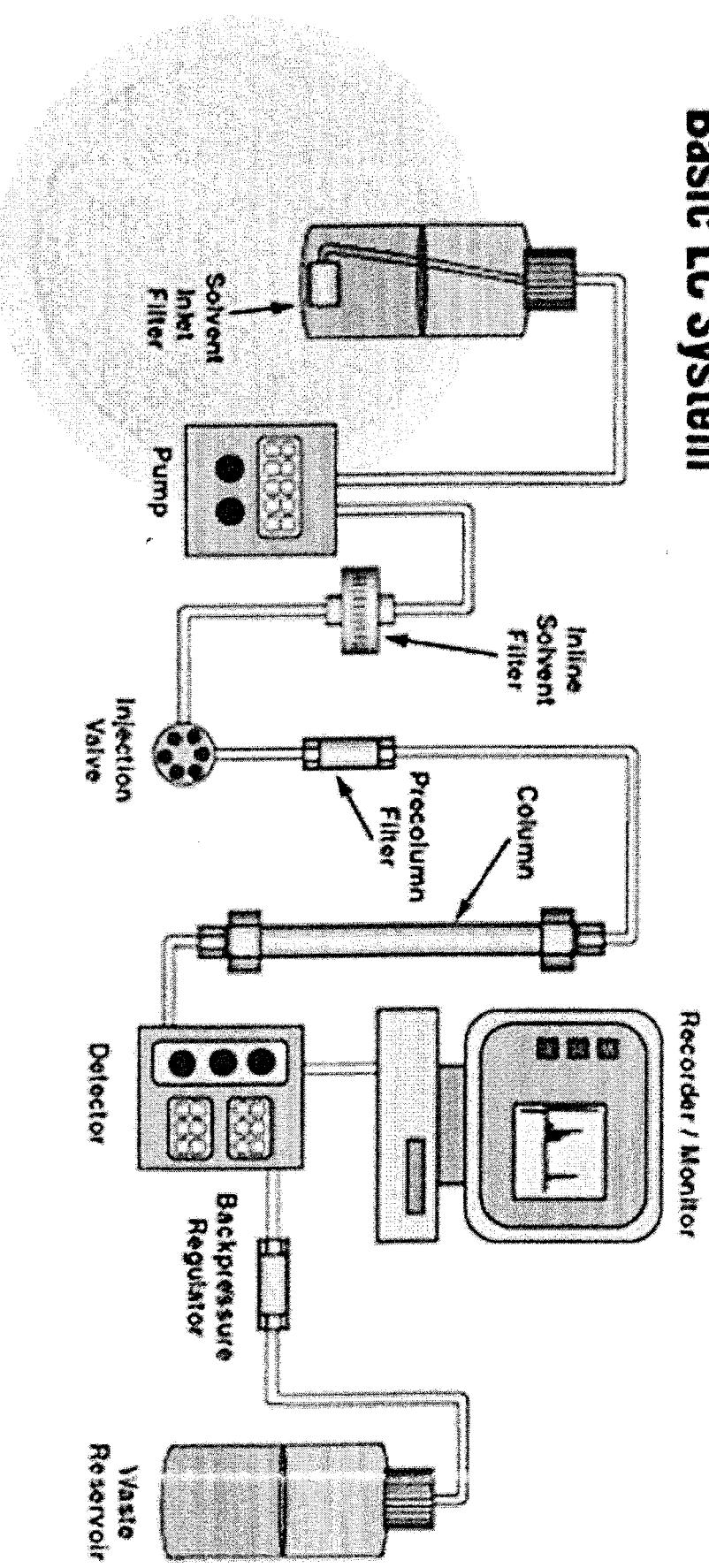


# Gel filtration Chromatography

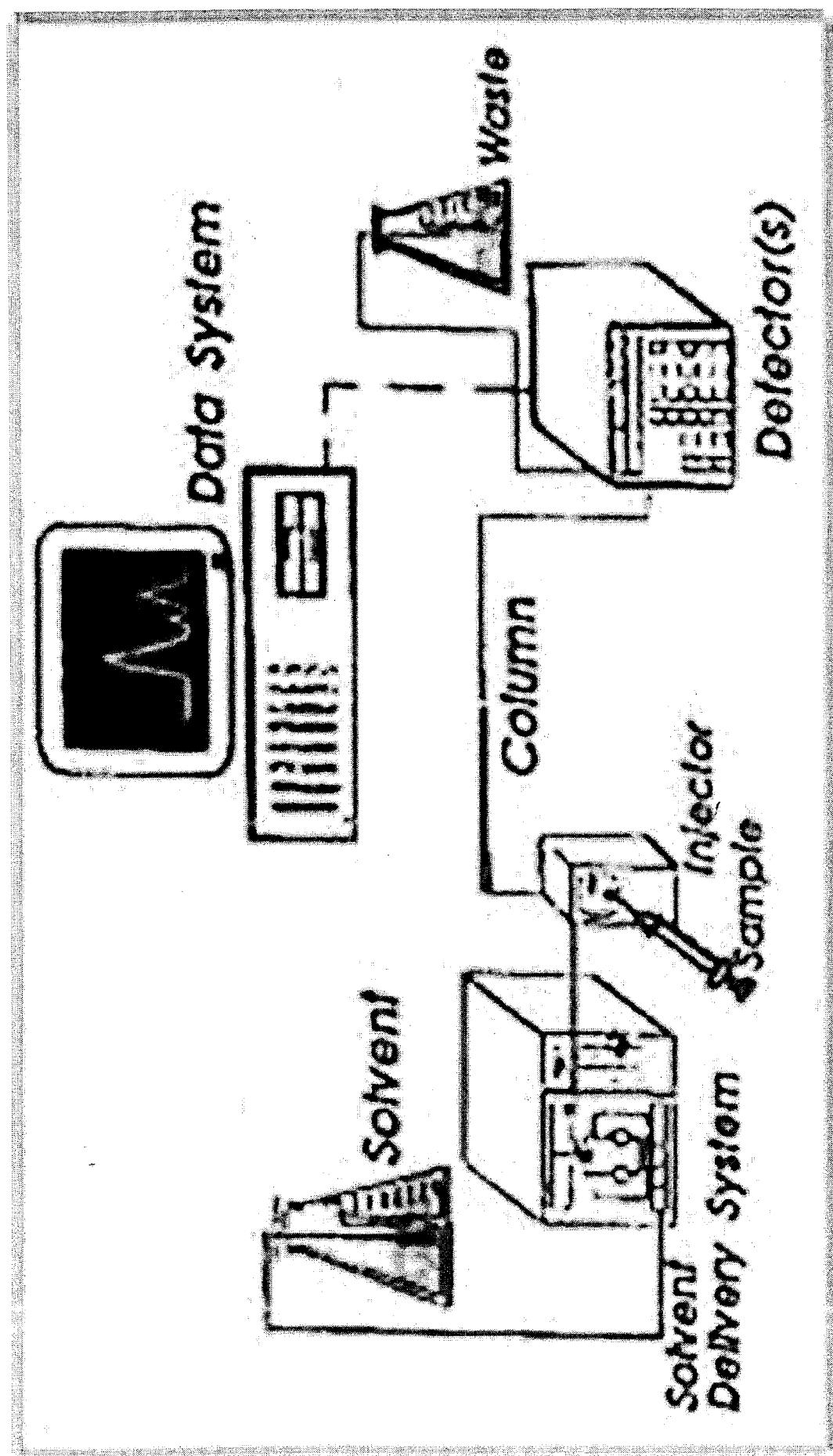


# Flash Chromatography

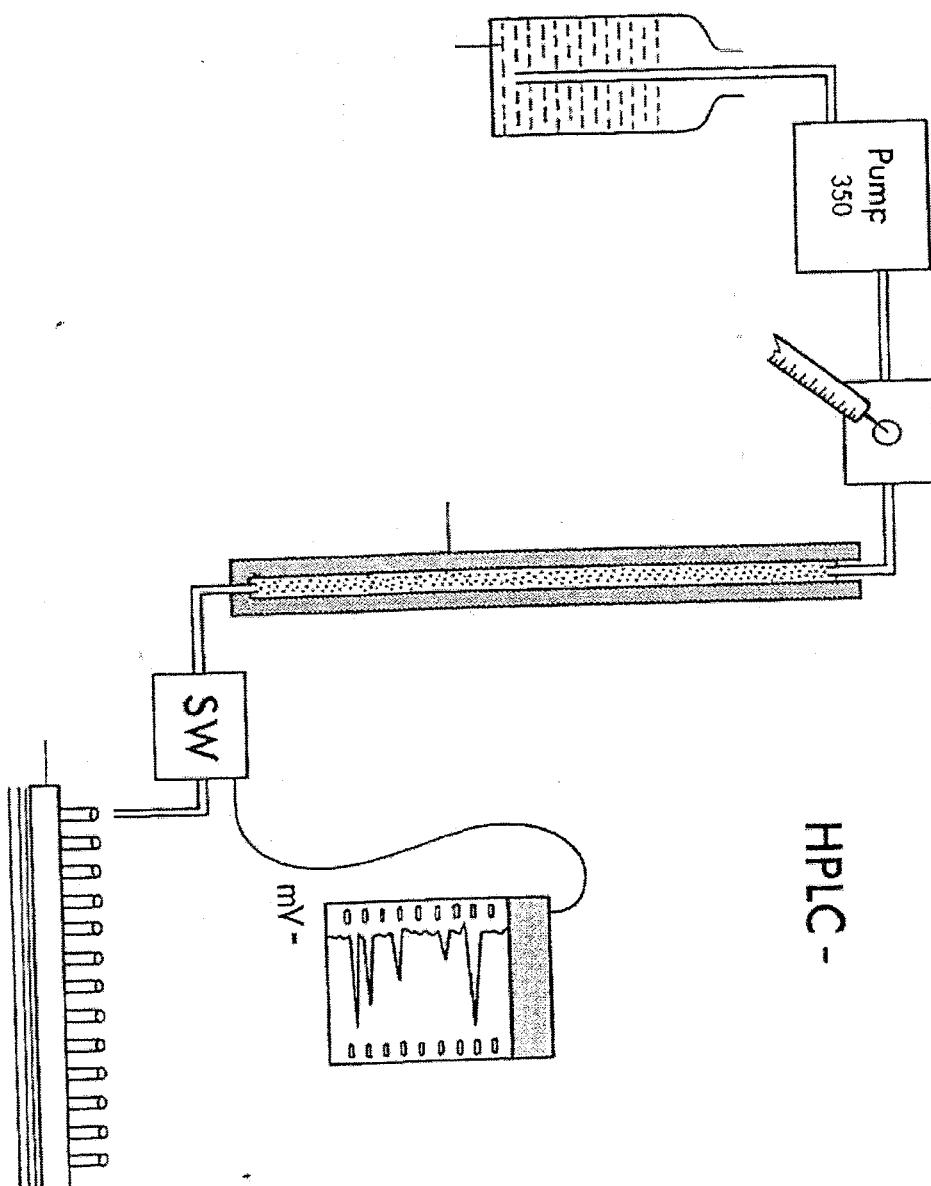
## Basic LC System



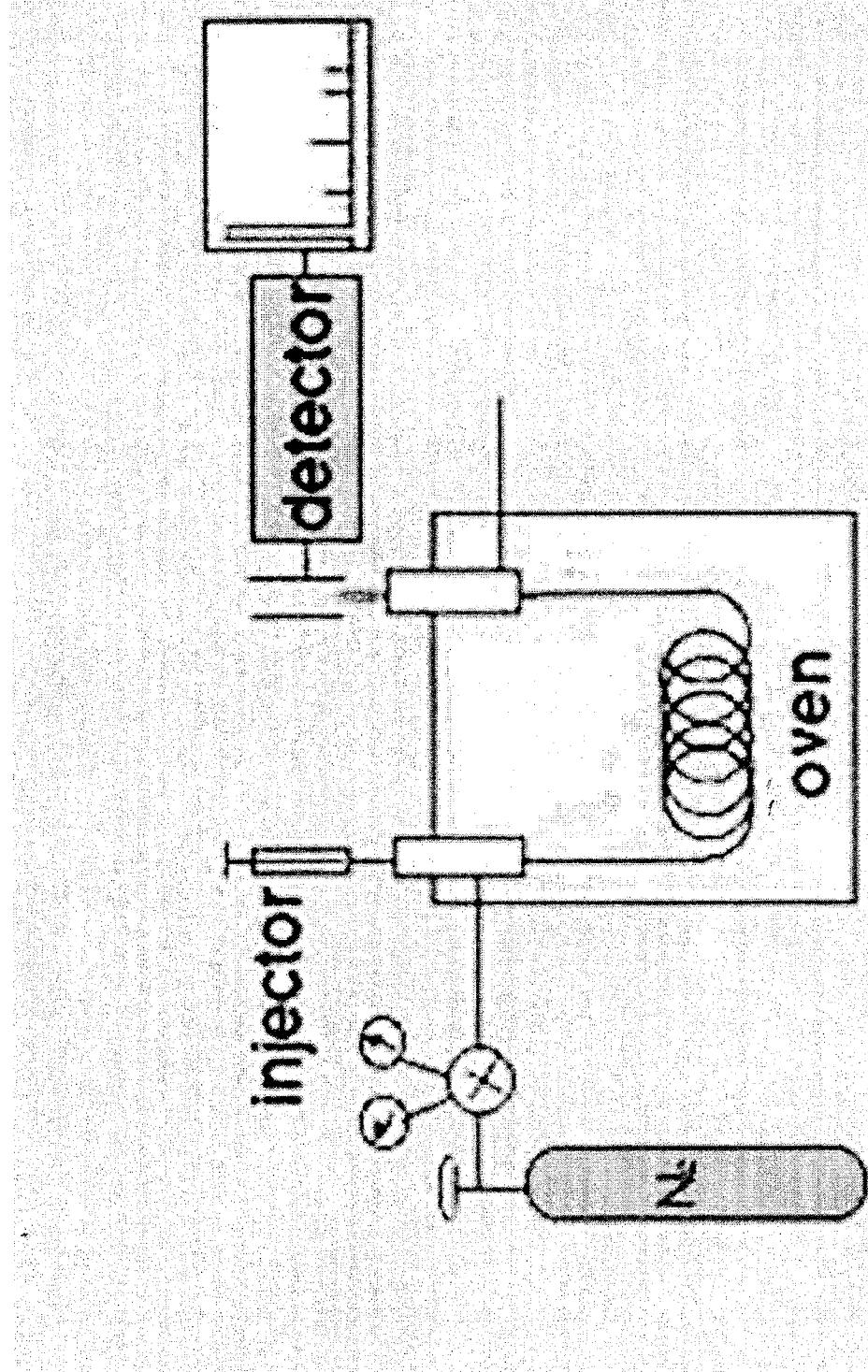
# HPLC



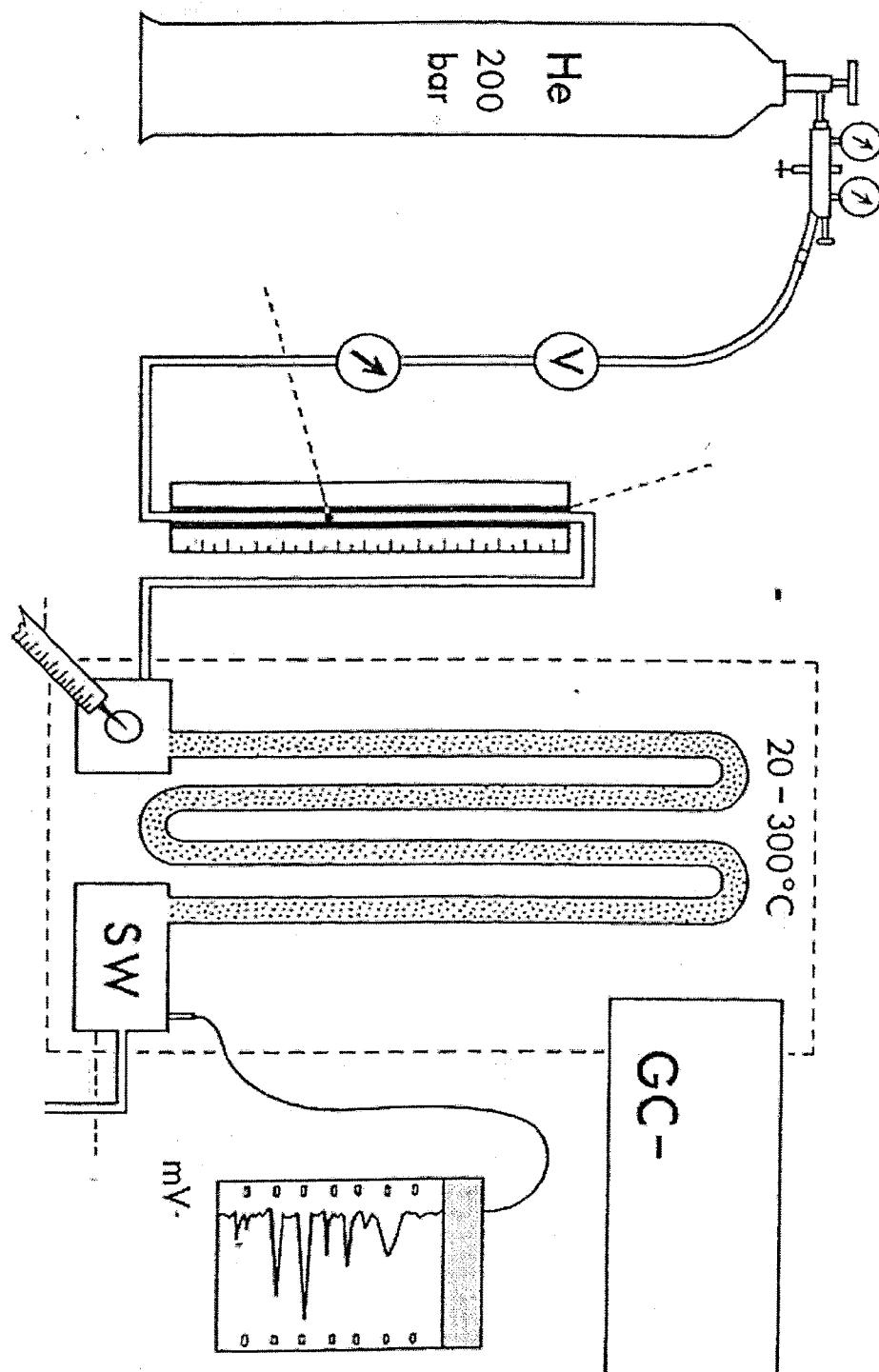
# HPLC



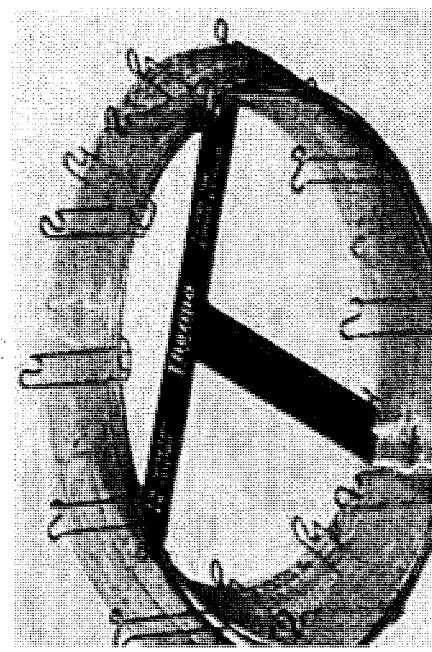
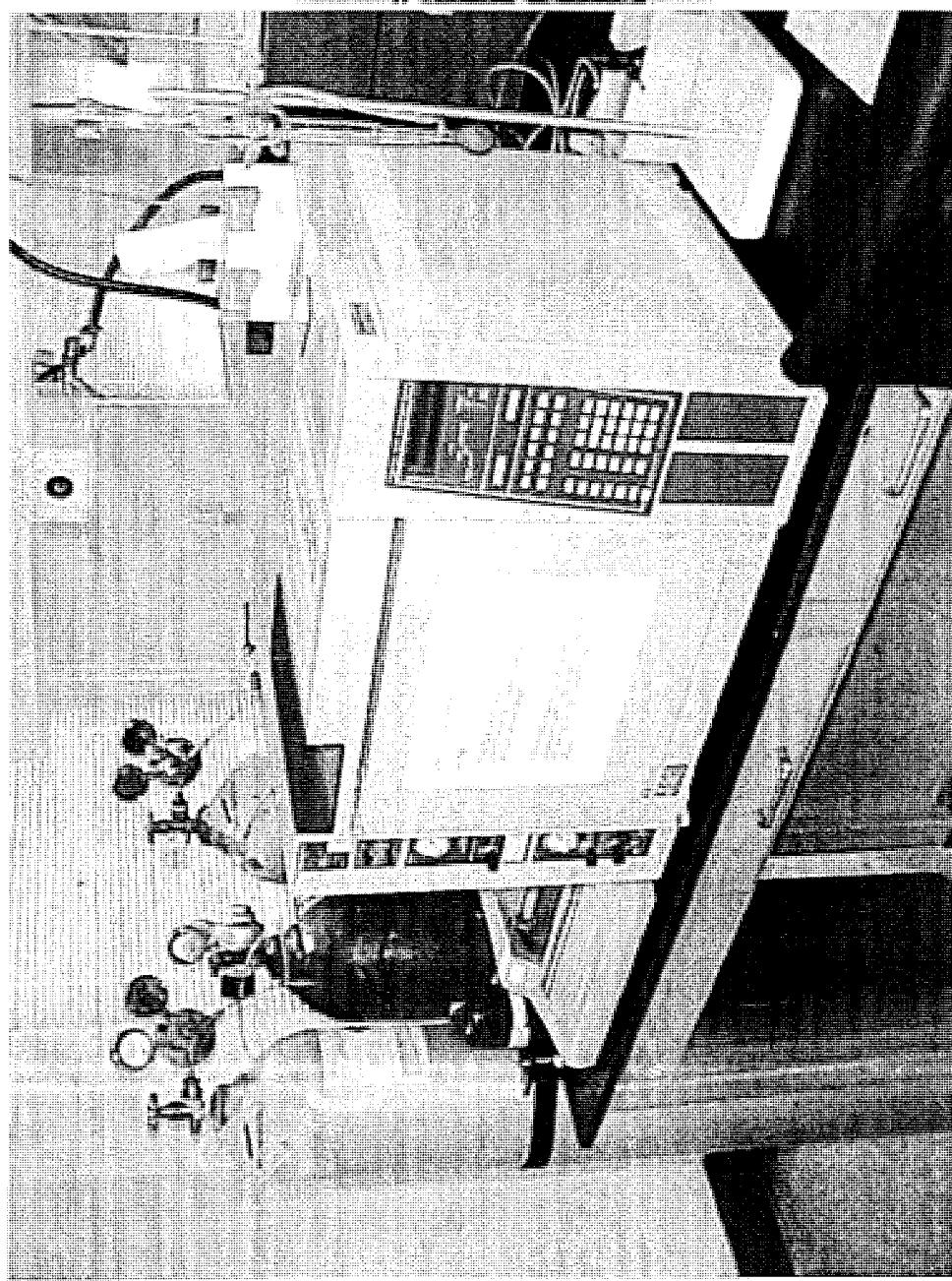
# Gas liquid chromatography



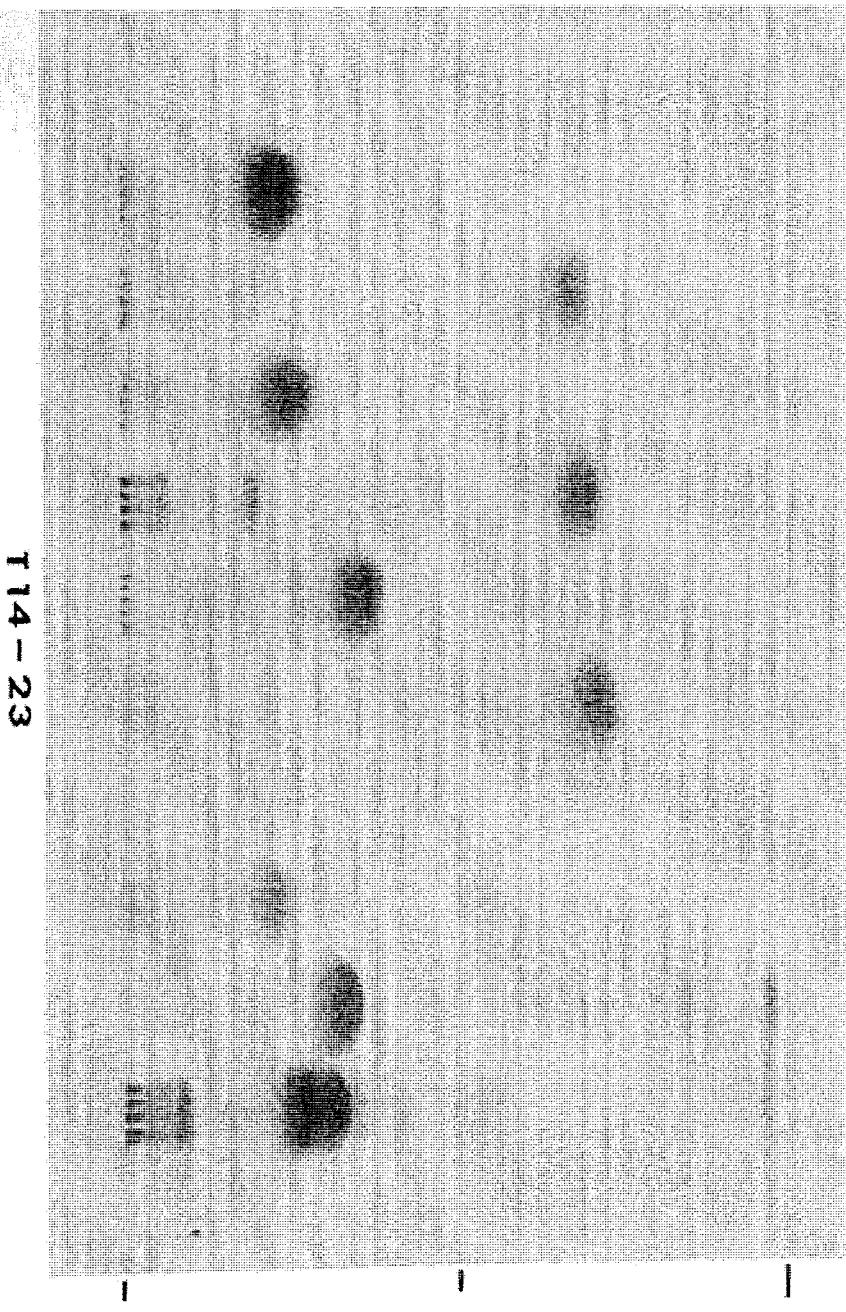
**GC**



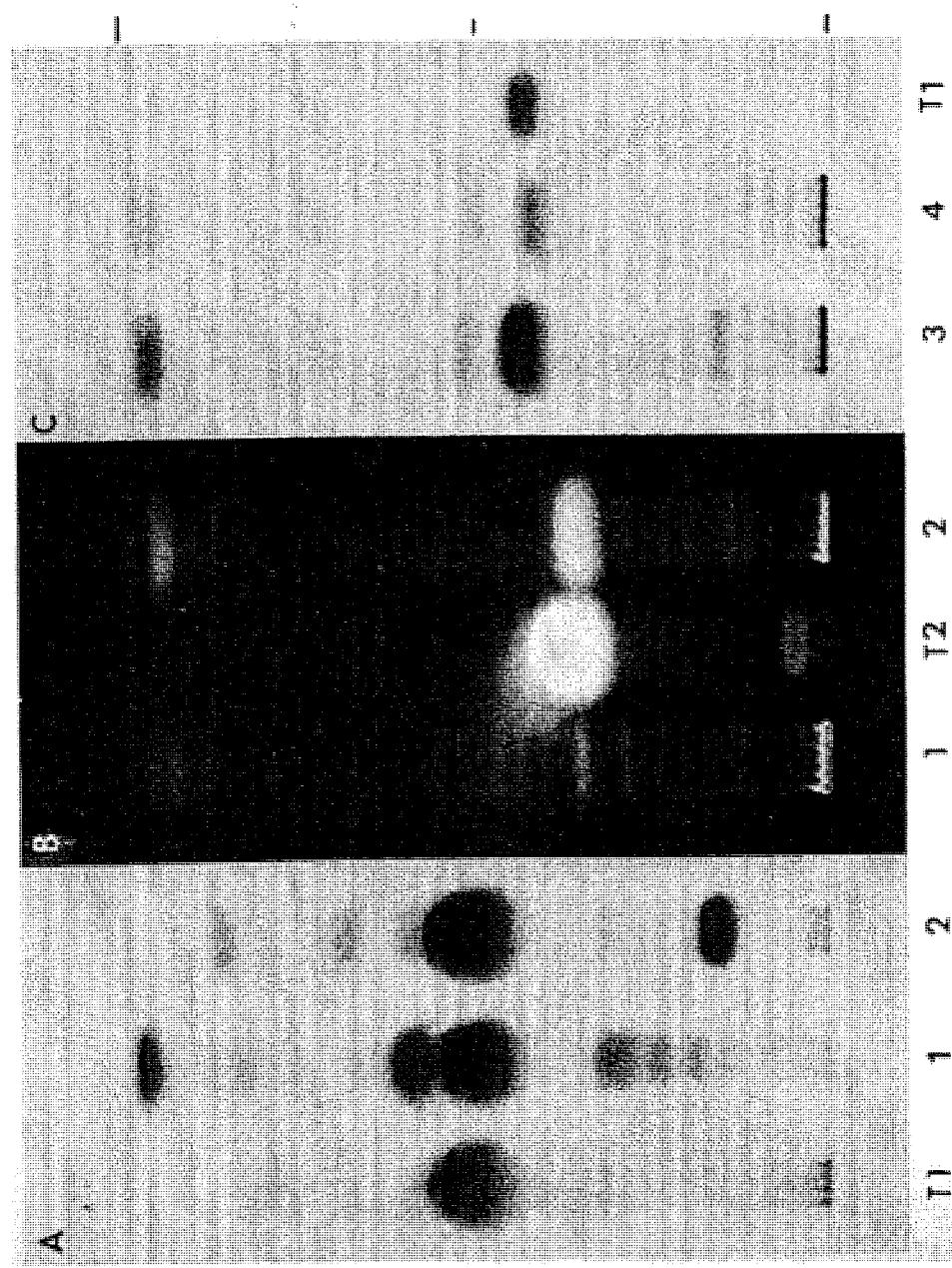
# Capillary GC



# Geraniol, geranylacetate, Nerol

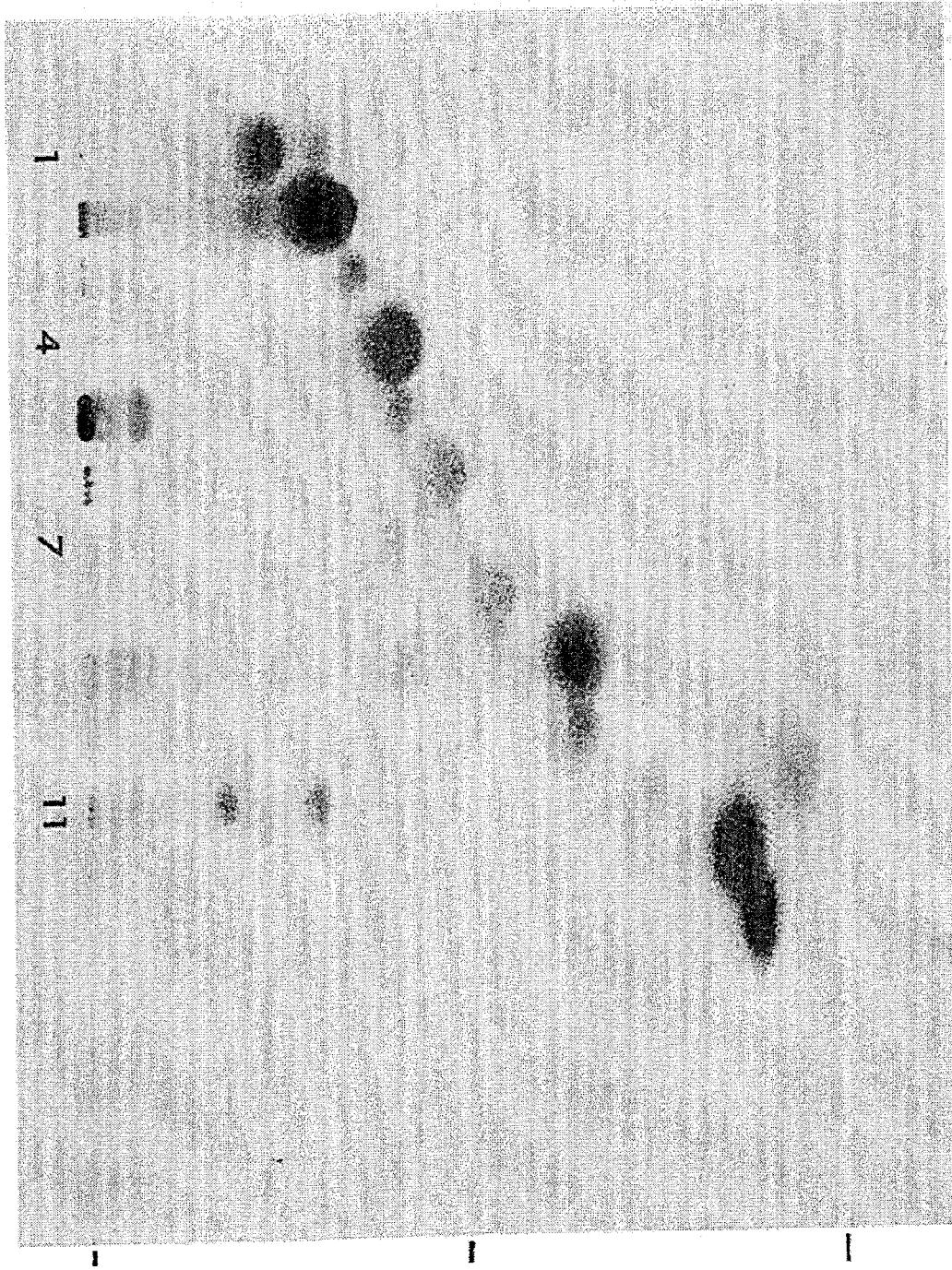


# Cinnamomi ceylanici, Calami,

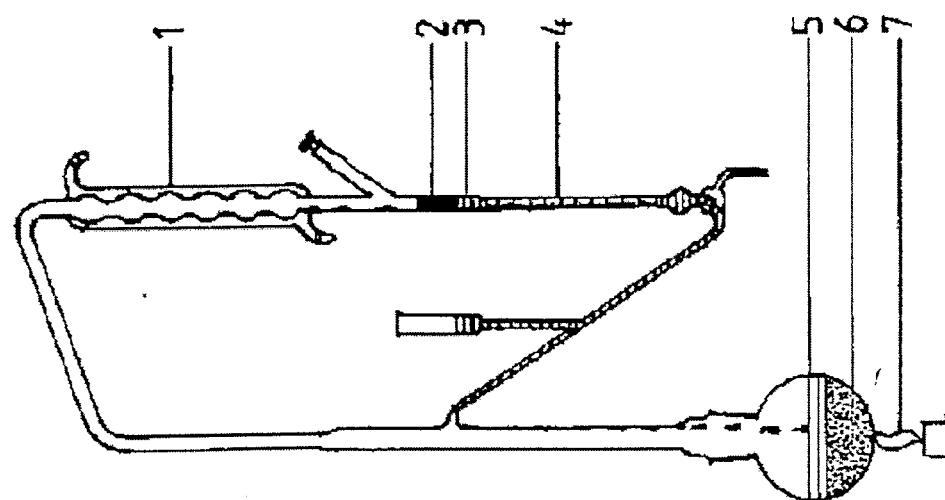


# Example of TLC

Borneol, Linalool, Piperiton

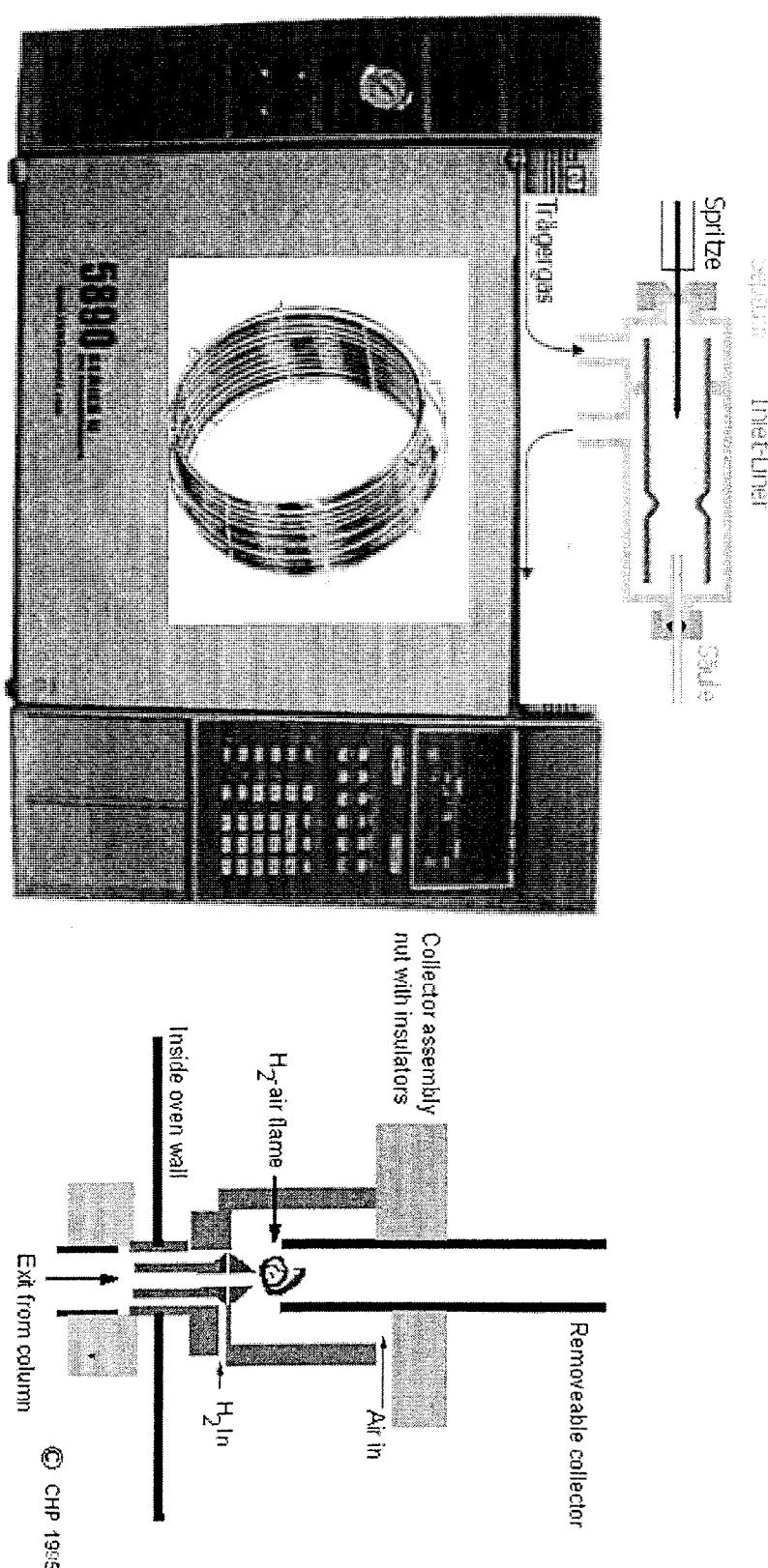


# Extraction of volatile oils



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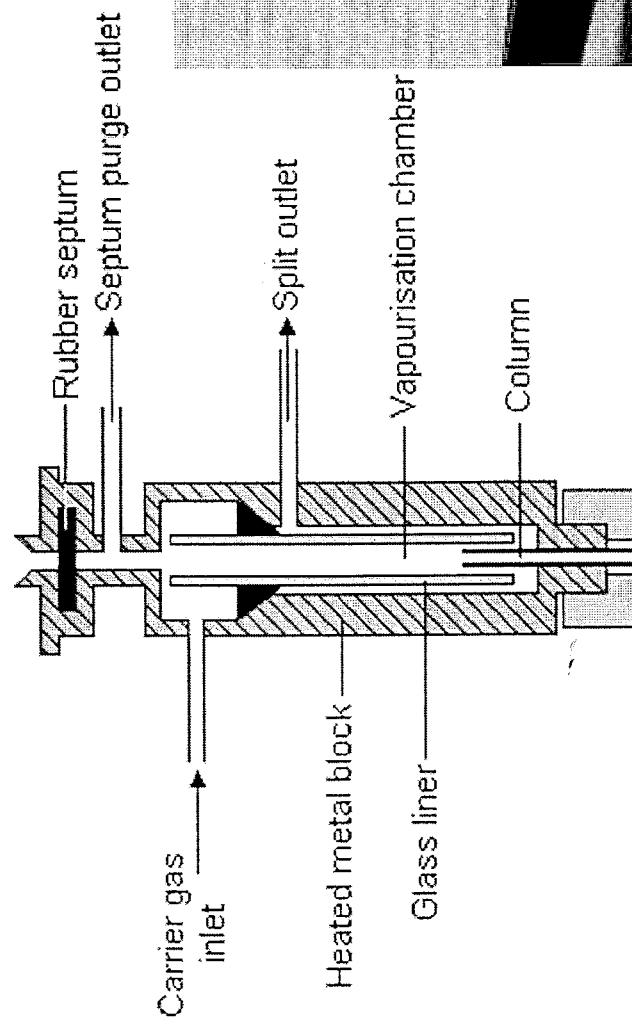
# GC



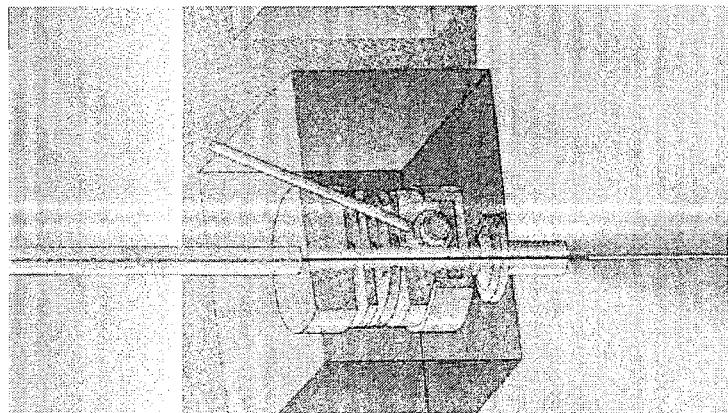
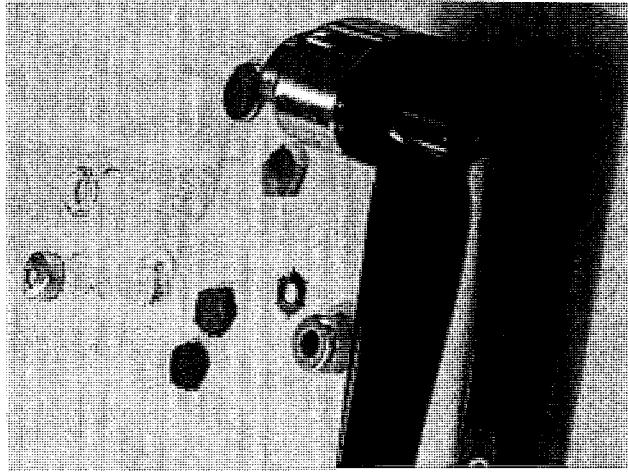
# GC

## On-Column

The split / splitless injector

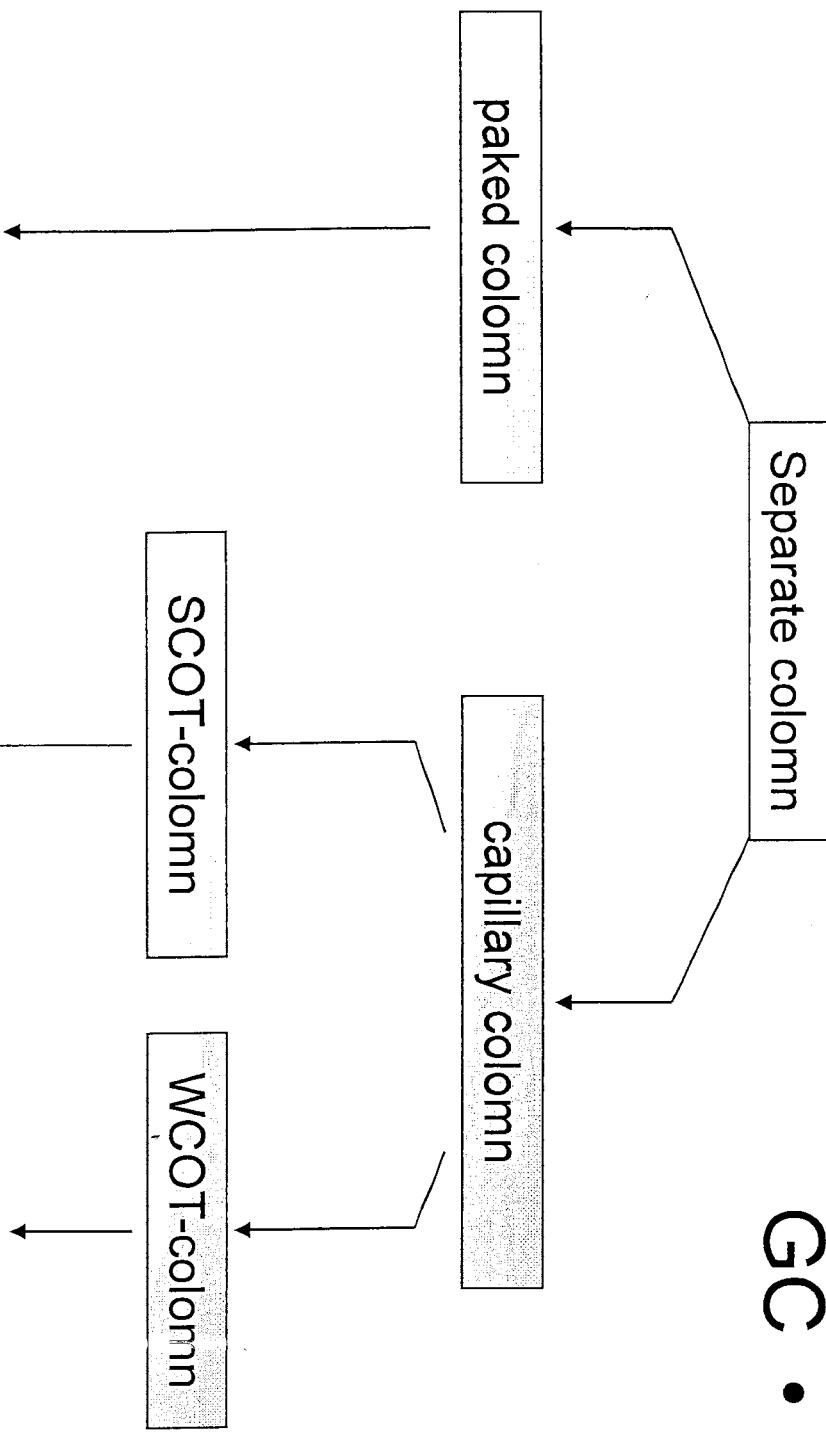


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# Forms of GC

GC •



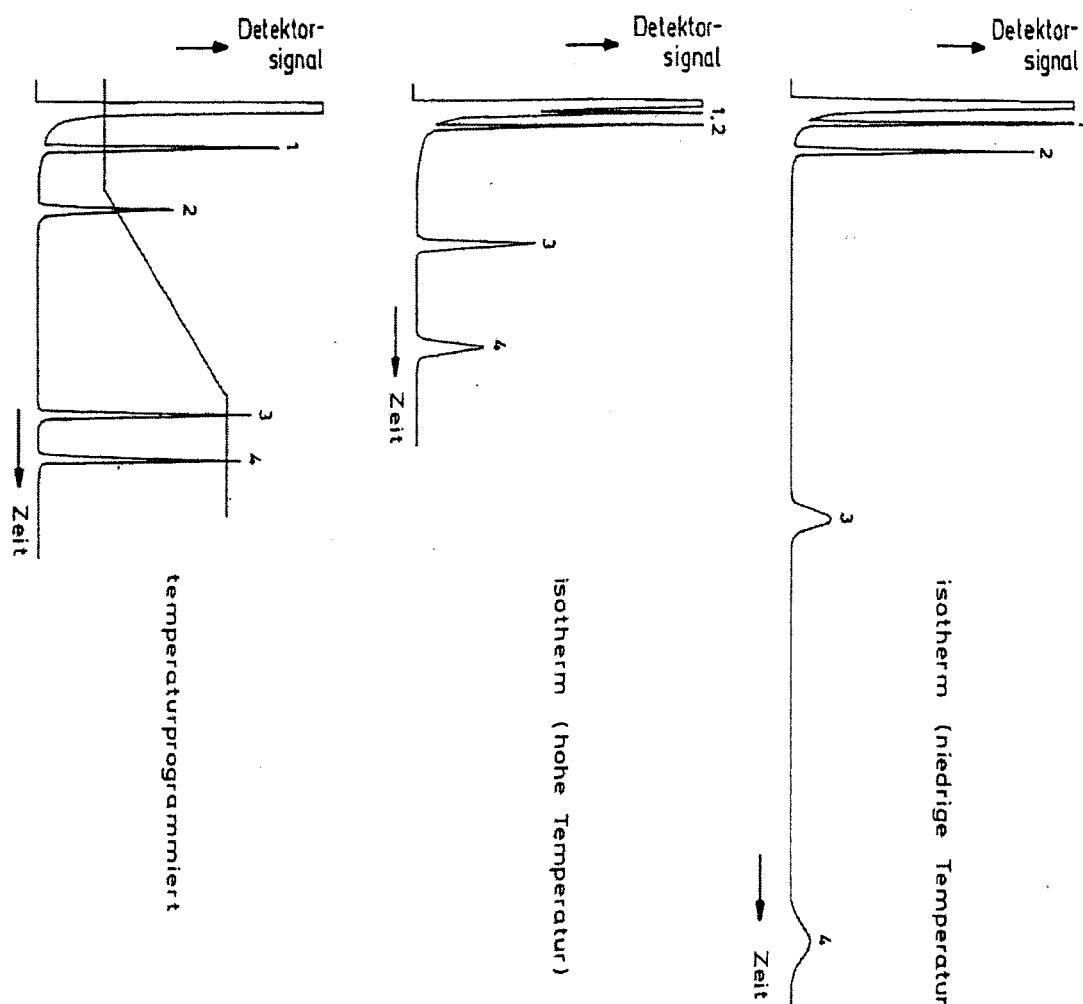
1. anorganic solid compounds (GSC)  
Dr. Isam Agha
2. Organic, polymeric compounds (GSC)

# Retentiontime

Def.: The Retentiontime is related to distribution factor k between fluid stationary phase and Gasphase (in constant T and V -holdgas)

$$k = \frac{\text{conc. in fluid station phase}}{\text{concentration in holdgas}}$$

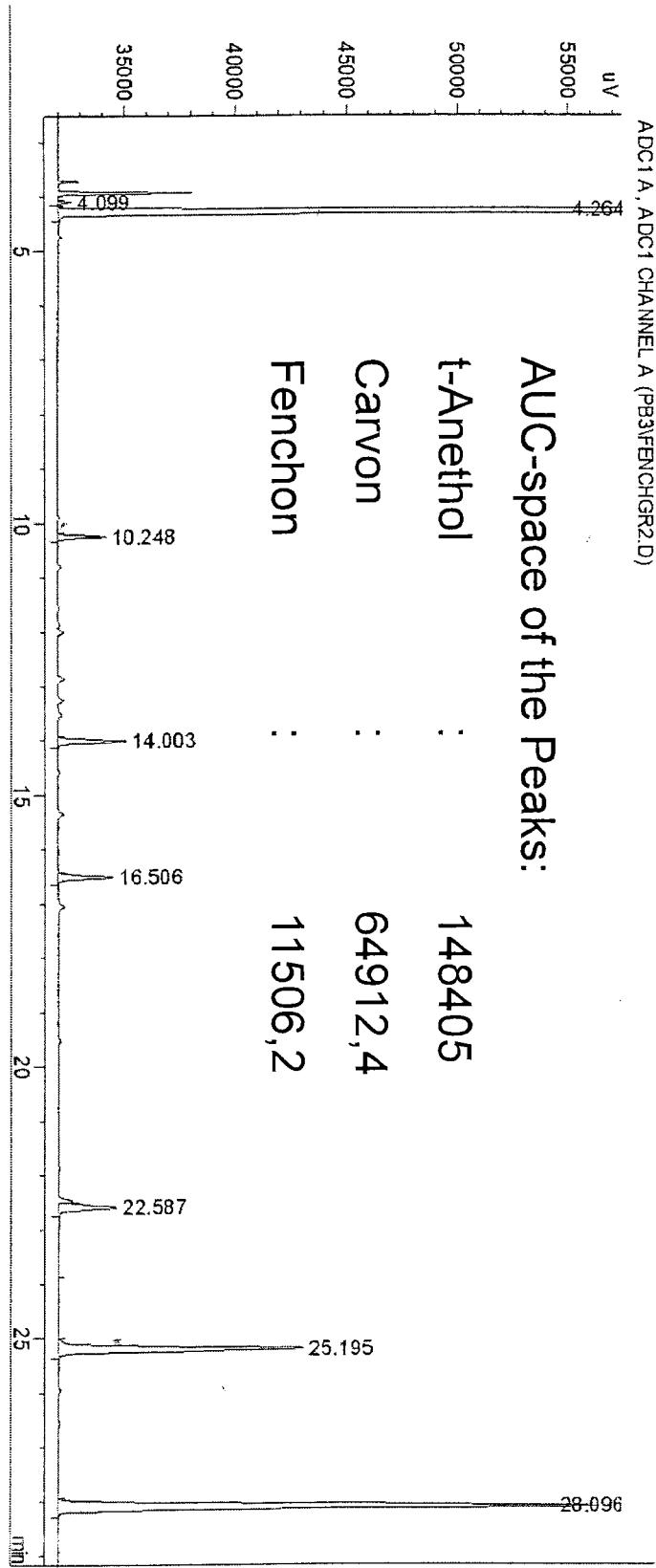
# Temperatur-relationship of gaschromatographic separation



# GC

- Dead time:
- Is the time , which the Substance need to leave the column without any delay because of the stationary Phase

# GC internal standard



# Phytochemistry

## Carbohydrates

Trease and Evans Pharmacognosy

P. 191-213

# Carbohydrate

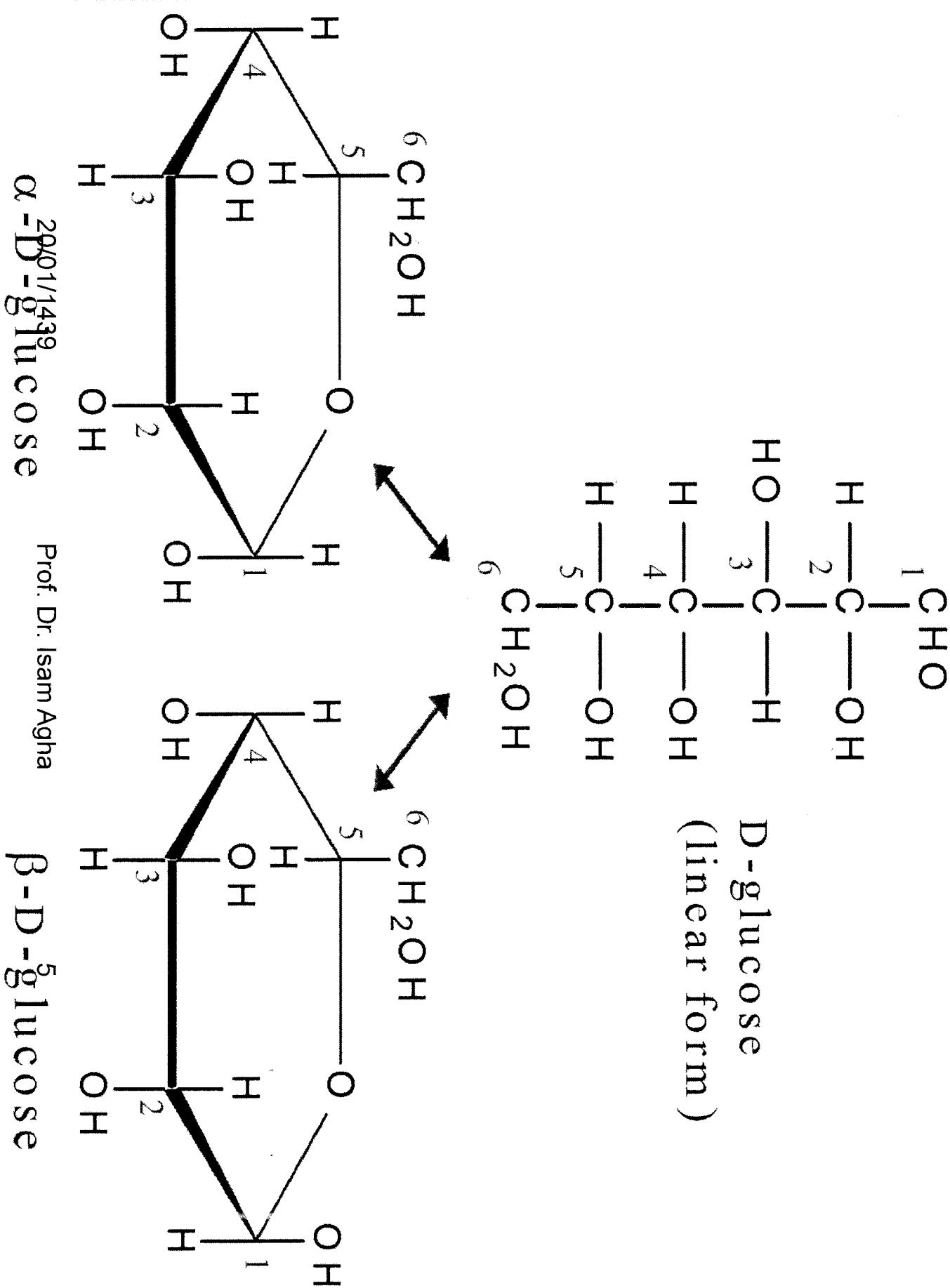
- Carbohydrate are distinguished as:
  1. Monosaccharides, characterized by the presence of an aldehyde (aldoses) or ketone (ketoses) carbonyl function and ( $n-1$ ) hydroxyl functions.
  2. Oligomeric and polymeric saccharides.
  3. Glycosides or conjugate saccharides

# Carbohydrate

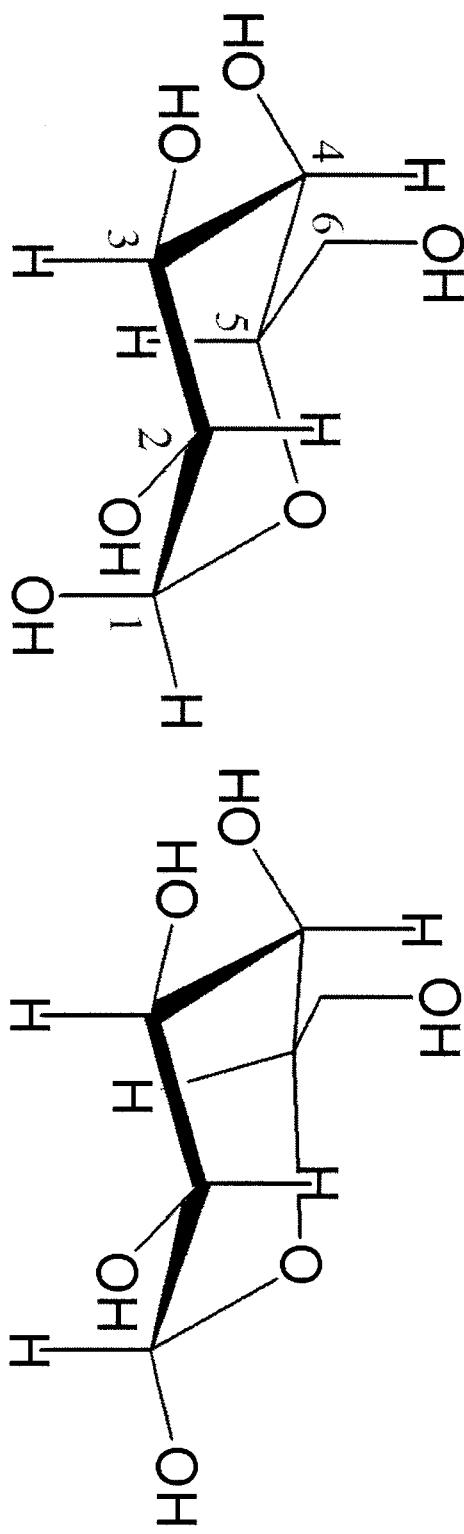
- ◆ Monosaccharides - simple sugars with multiple OH groups. Based on number of carbons (3, 4, 5, 6), a monosaccharide is a triose, tetrose, pentose or hexose.
- ◆ Disaccharides - 2 monosaccharides covalently linked.
- ◆ Oligosaccharides - a few monosaccharides covalently linked.
- ◆ Polysaccharides - polymers consisting of chains of monosaccharide or disaccharide units.

# Principal monosaccharides used in pharmacy

1. D-Glucose:
  - is not extracted from plant material for commercial use.
  - It is prepared by enzymatic hydrolysis of starch through the combined action of  $\alpha$ -amylase and amyloglucosidase.
  - There are three different forms of glucose: anhydrous glucose, glucose monohydrate, and liquid glucose (DE, dextrose equivalent more than 20).



# D-Glucose:



$\alpha$ -D-glucopyranose       $\beta$ -D-glucopyranose