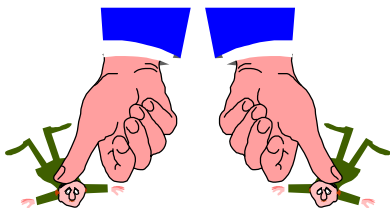
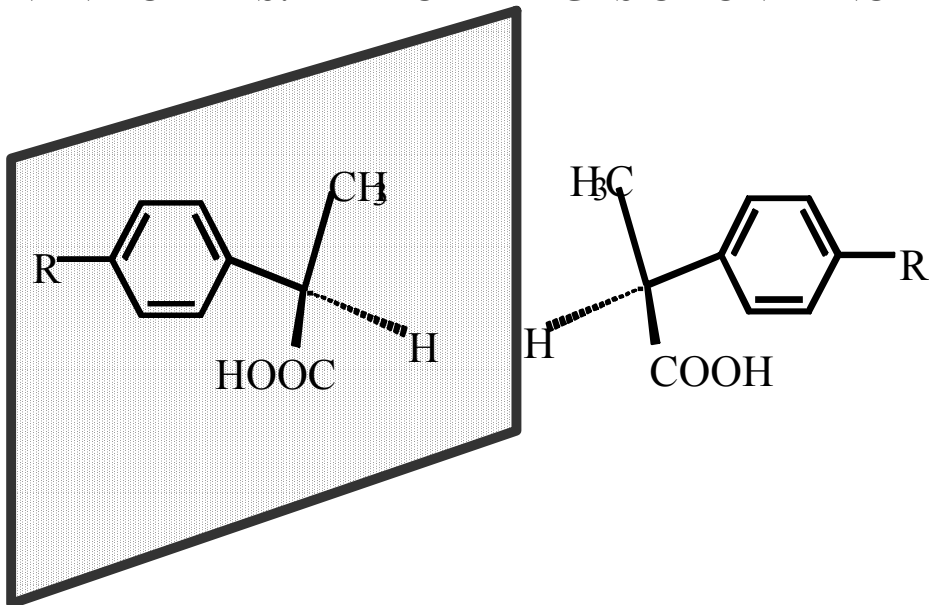


Separation of Optical Isomers (Enantiomers) by Chiral Chromatography



Dr. Shulamit Levin
Medtechnica

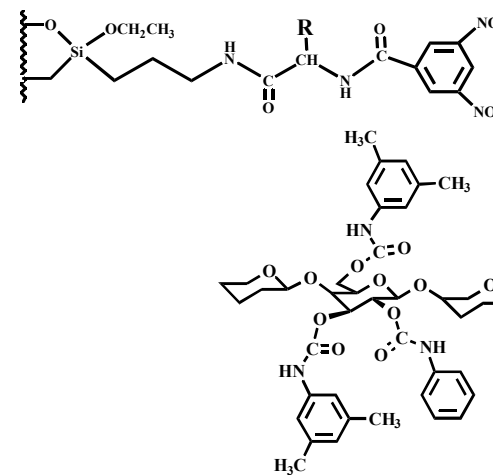
ENANTIOMERS: MIRROR IMAGES OF ONE ANOTHER



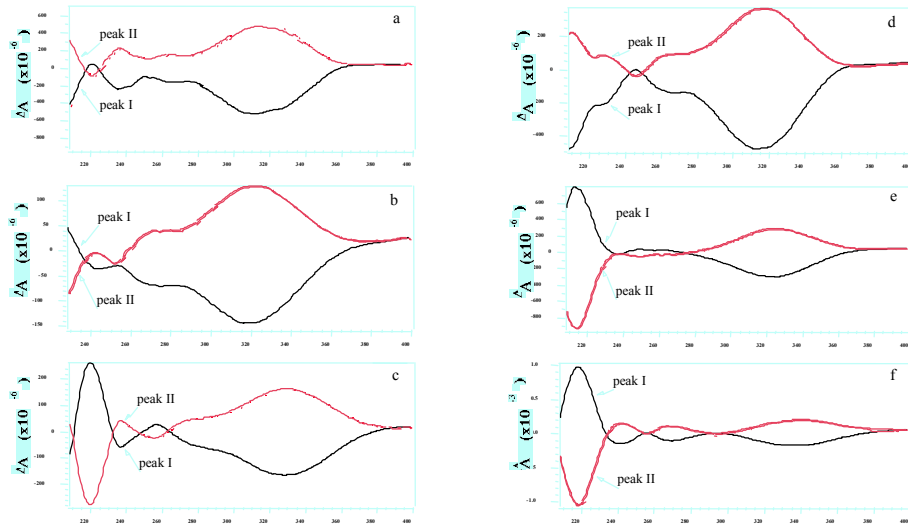
60 seconds on stereochemistry

Asymmetric	-----	Lacking an alternative axis of symmetry, existing as enantiomers
Chiral, "handed"	-----	having the potential to exist as two nonsuperimposable mirror images
Enantiomers (stereoisomers)	-----	Two nonsuperimposable compounds, mirror images of one another
Diastereomers	-----	Optical isomers that are not mirror images on one another
Enantioselectivity	-----	Selective preference of one enantiomer over the other
Optical activity [(+) or (-)]	-----	Experimentally observed rotation of the plane of monochromatic plane polarized light
R or S	-----	Absolute configuration about a dissymmetric center
Racemate	-----	50:50 mixture of two enantiomers

Chiral Molecules

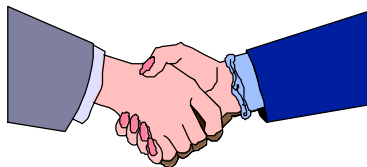


Circular Dichroism SPECTRA



Chiral stationary phases:

- * **Ligand exchange**
- * **π -Donnor π -acceptor (Pirkle)**
- * **Chiral Host-guest (cyclodextrin)**
- * **Immobilized proteins**
- * **Immobilized polysaccharides**

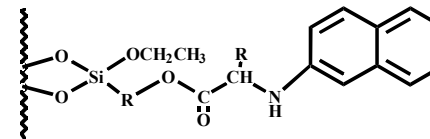


Stereospecificity in drug action

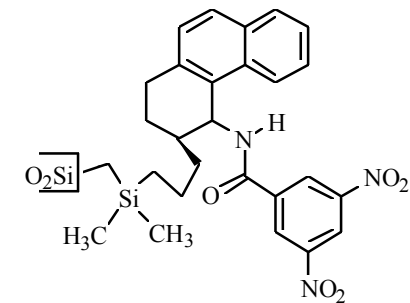
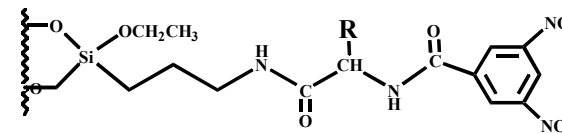
- * **binding to proteins**
- * **transport through membranes**
- * **receptor recognition**
- * **metabolism**
- * **clearance**

π - Donor π - acceptor (Pirkle) Type

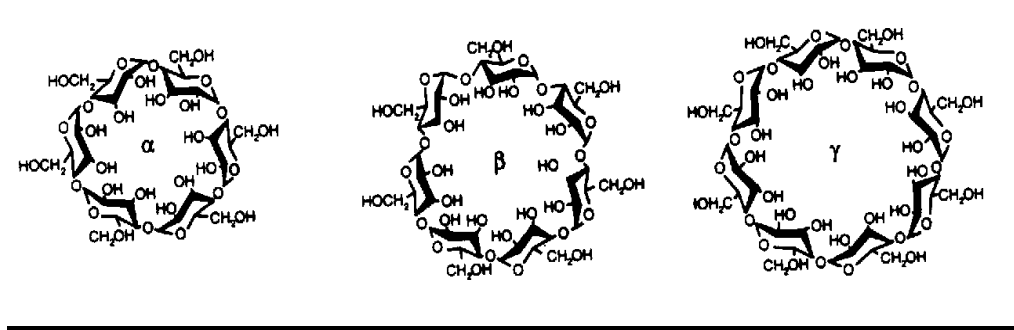
Napthyl amino acids



Dinitrobenzoyl amino acids

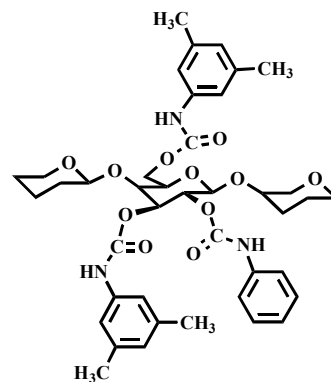


Chiral cavity by cyclodextrins

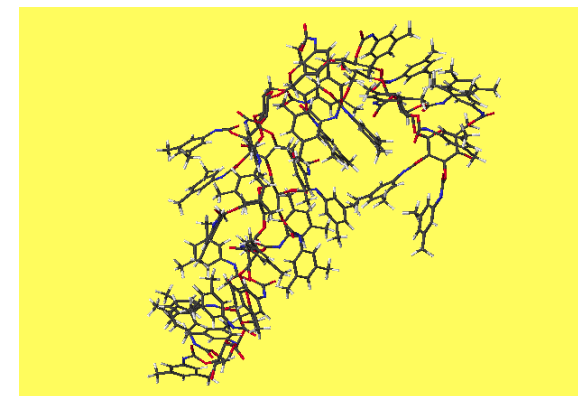


Immobilized polysaccharides:

Amylose
or
Cellulose

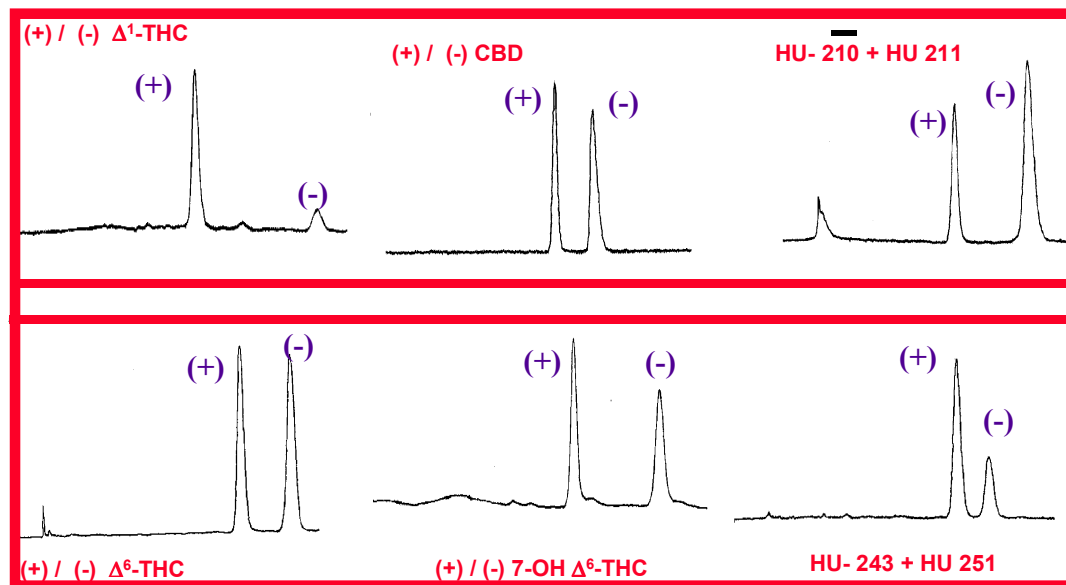
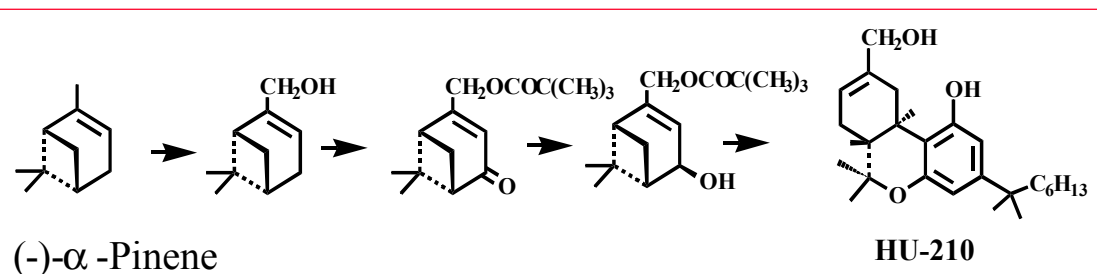
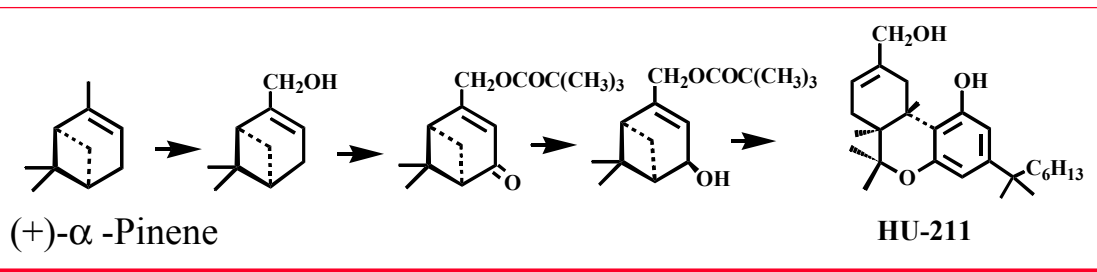


tribenzoate
tris phenylcarbamate
triacetate

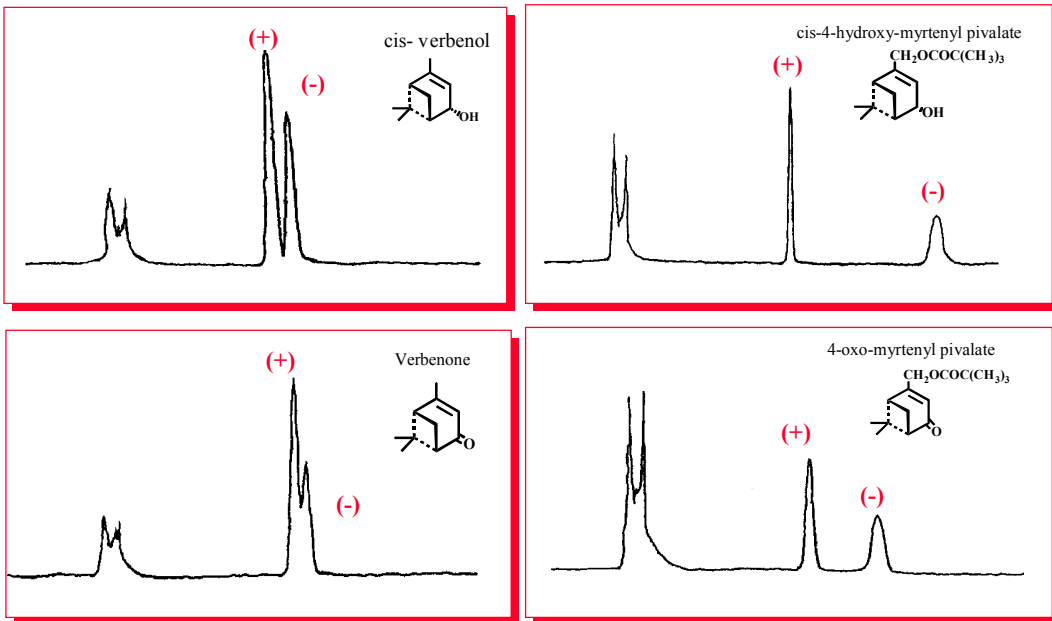


SEPARATION OF 6 ENANTIOMERIC PAIRS OF CANNABINOIDS

FROM TERPENOIDS TO CANNABINOIDS

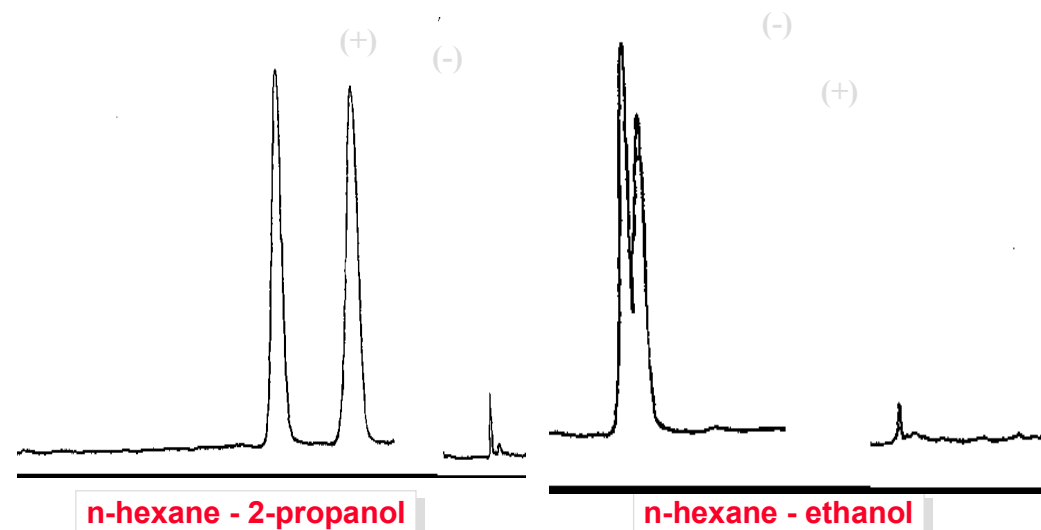


SEPARATION OF ENANTIOMERS OF TERPENOIDS

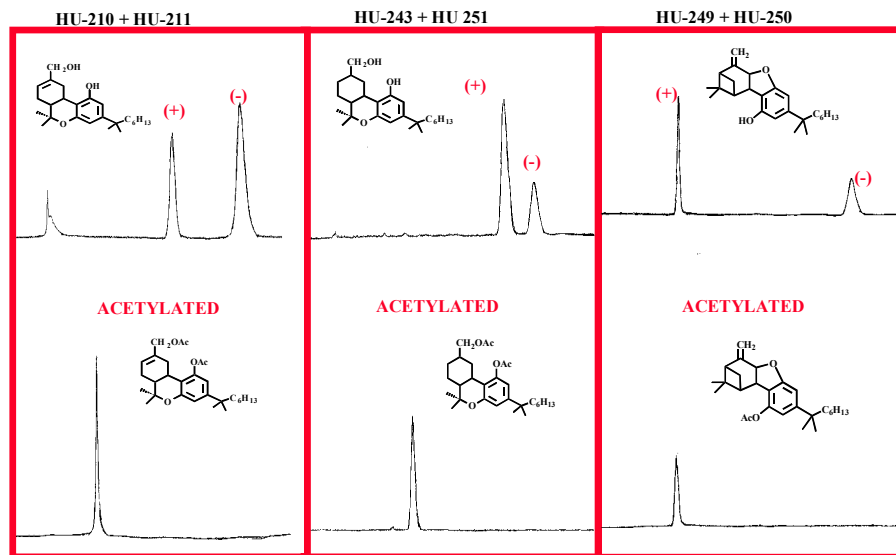


(+) and (-)- Δ^6 -THC IN TWO SOLVENTS

REVERSAL OF ELUTION ORDER!

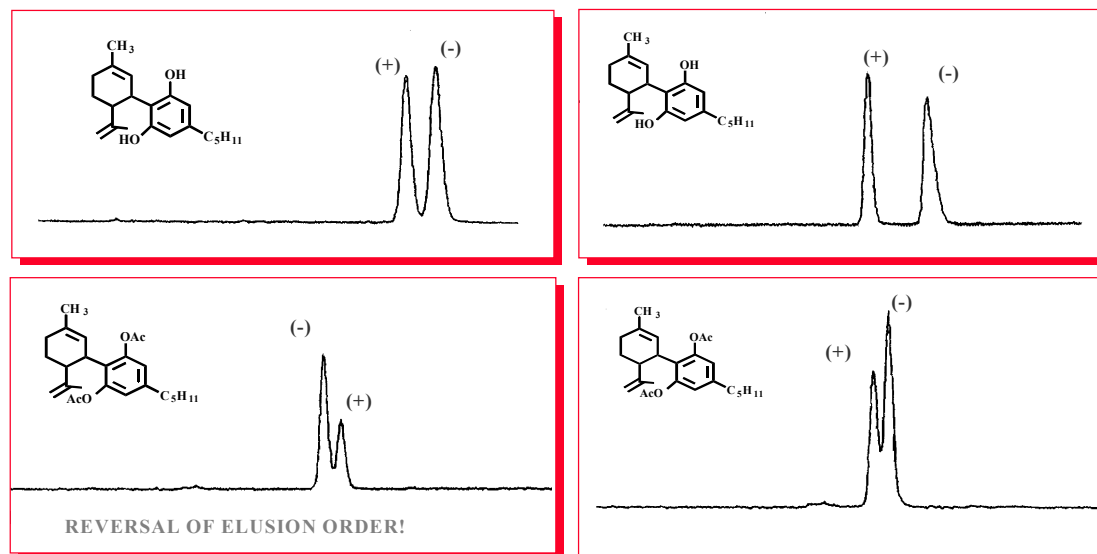


ACETYLATION OF THE -OH GROUP



n-hexane - 2-propanol

n-hexane - ethanol



REVERSAL OF ELUTION ORDER!