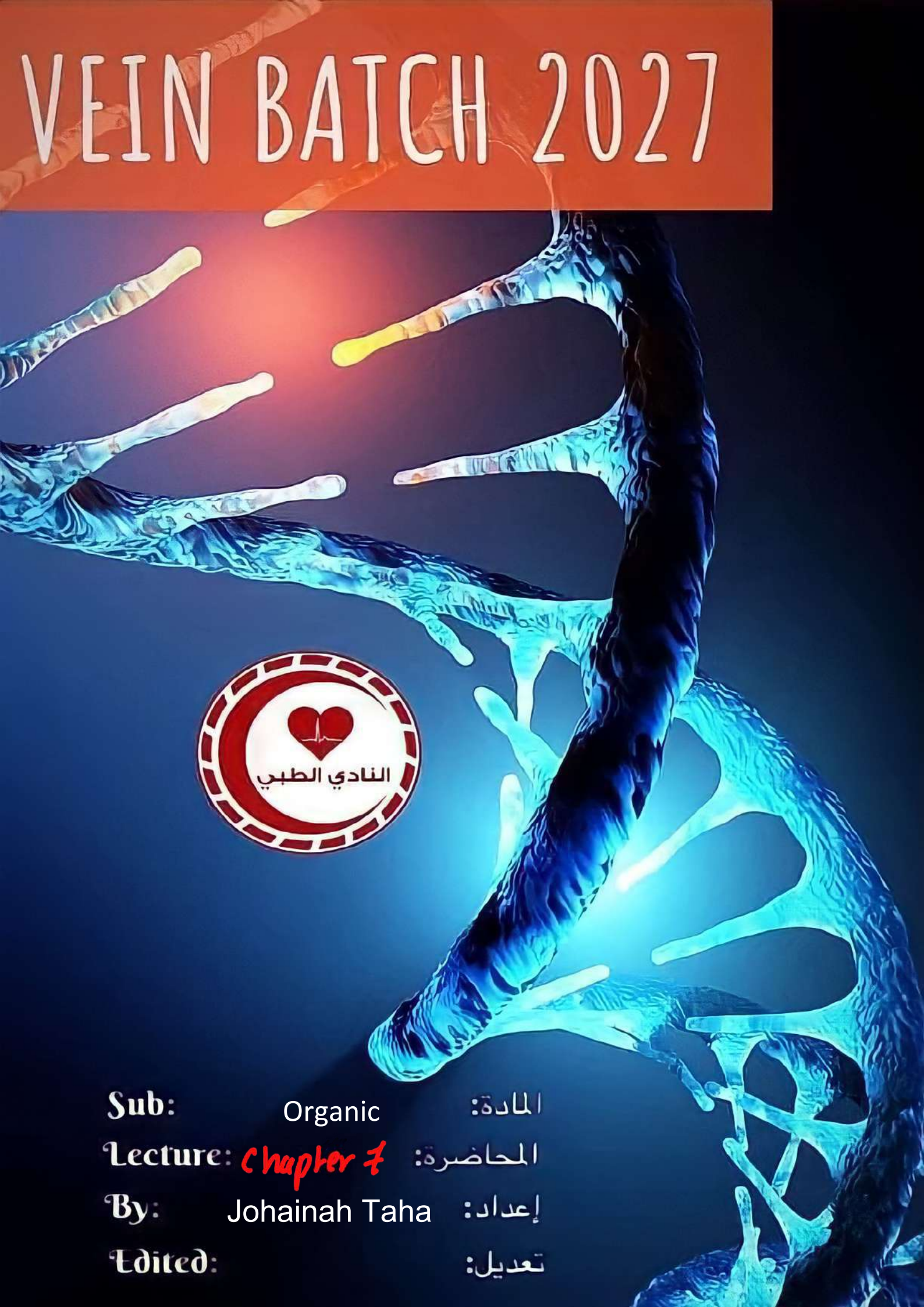
VEIN BATCH 2027



النادي الطبي

Sub: Organic المادة:

Lecture: Chapter 7 المحاضرة:

By: Johainah Taha إعداد:

Edited: تعديل:

Record 15 - part 3
27:00

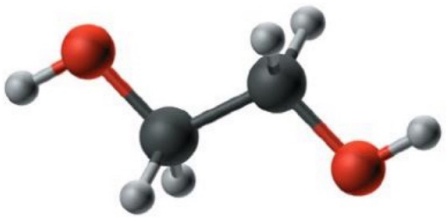
Polyols: glycols

Glycols are molecules with more than one OH group, i.e. a multiple alcohol.

They are characterized by very high BP, and are very water soluble.

① ② السبب طبعًا نوع IMF ← H bonding

BP = 198°C

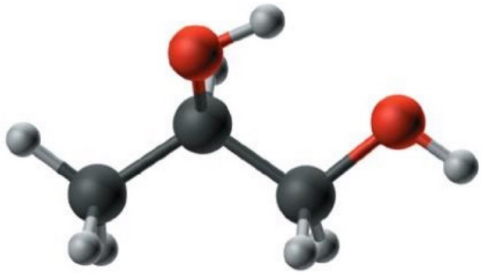


CH_2CH_2
| |
OH OH

1,2-Ethanediol (Ethylene glycol)

OH ترقيم ← 2OH ← diol ← كحول ← حفظ

BP = 290°C

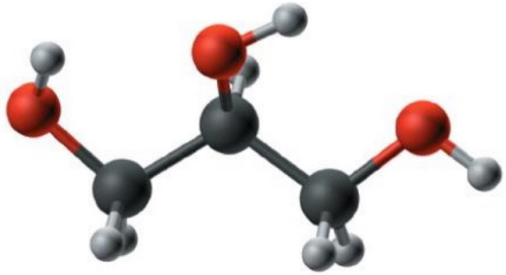


CH_3CHCH_2
| |
HO OH

1,2-Propanediol (Propylene glycol)

2OH ← حفظ

BP = 110-112°C ← ظن بسبب IMF



CH_2CHCH_2
| | |
HO HO OH

1,2,3-Propanetriol (Glycerol, Glycerin)

3OH ← حفظ

ملاحظة مهمة :-

* $CH_3 - CH_2 - OH$

- كم OH عندي هون ؟ 1
- كم BP ؟ 70°C

* $OH - CH_2 - CH_2 - OH$

- كم OH عندي هون ؟ 2 .
- كم BP ؟ 198°C .

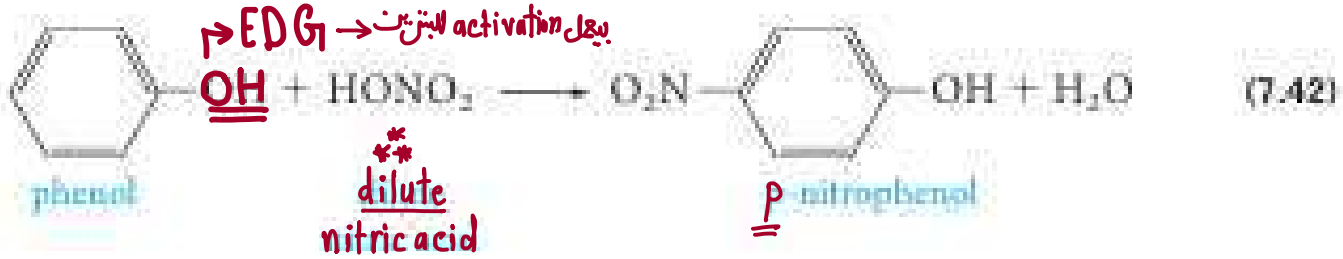
نستنتج أن :-

كلما زاد عدد OH كلما زادت BP ، والسبب هو بانه Source of H bonding بزيد كل ما زدنا عدد OH .

Record 15 - Part 3
30:40

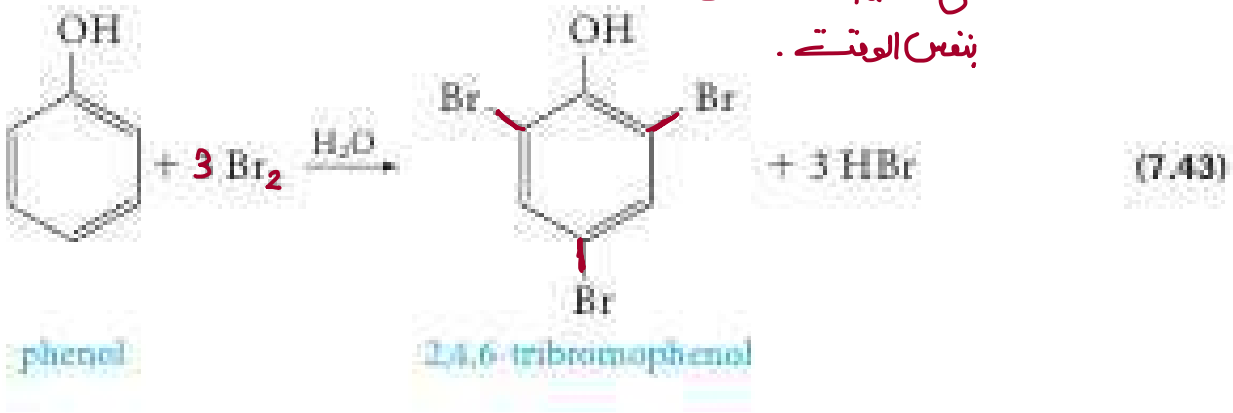
Phenols

In aromatic substitution reactions the OH group is activating and o,p-directing, thus subsequent reactions are fast and easy to do.



Phenol is also brominated rapidly with *bromine* in water, to produce 2,4,6-tribromophenol.

بسبب قوة OH حيطلع Br على ortho و para مع بعض ↓ بنفس الوقت.

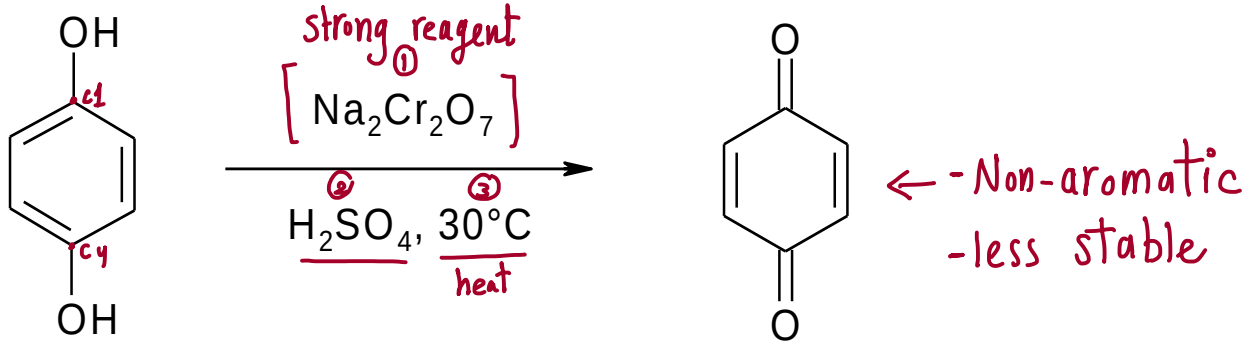


Oxidation of Phenols

another term for 1,4-benzoquinone

benzene-1,4-diol

Quinones and Hydroquinones are naturally occurring phenols used in redox reactions in the cell, i.e.



hydroquinone

1-4 Hydroxy group

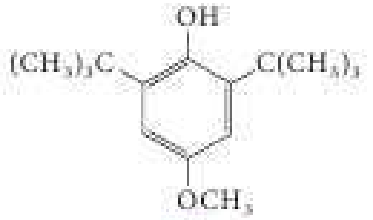
1,4-benzoquinone or quinones

ubiquinone or Co Q_{10}

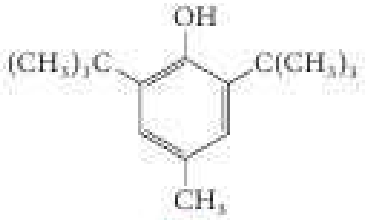
7.16 Phenols as Antioxidants

Substances that are sensitive to air oxidation, such as foods and lubricating oils, can be protected by phenolic additives. Phenols function as **antioxidants**. They react with and destroy peroxy (ROO·)and hydroxy (HO·) radicals, which otherwise react with the alkenes present in foods and oils to cause their degradation. The peroxy and hydroxy radicals abstract the phenolic hydrogen atom to produce more stable phenoxy radicals that cause less damage to the alkenes (eq. 7.45).

(7.45)



BHA



BHT

Record 15-part3
35:30

Thiols

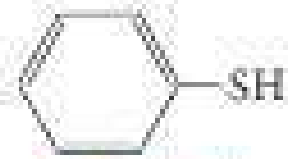
لهم خصائص متشابهة مع الكحول.

Sulfur analog of an alcohol, i.e. R-SH

– SH is a sulfhydryl or sulfanyl group.

The striped skunk (*Mephitis mephitis*) sprays a foul mixture of thiols at its enemies.

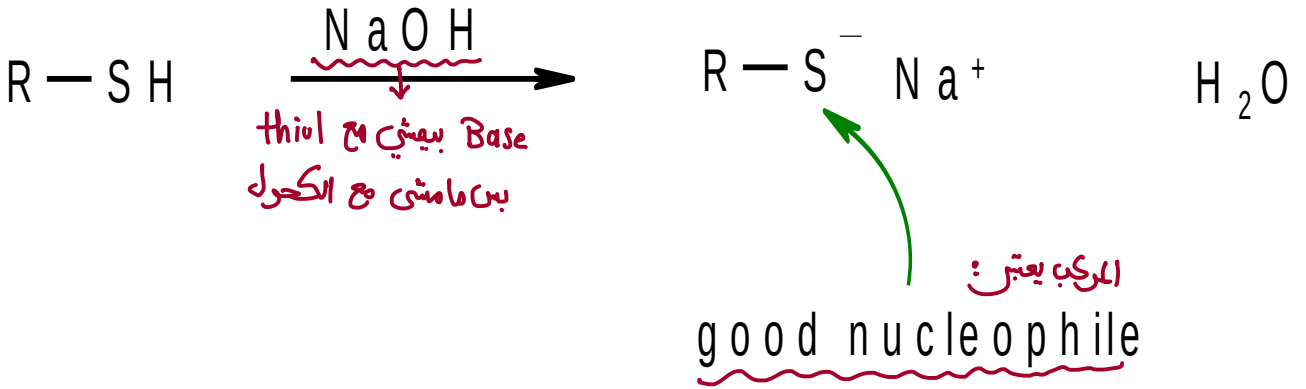
Sulfur is immediately beneath oxygen in the periodic table and can often take its place in organic structures. The —**SH** group, called the **sulfhydryl group**, is the functional group of thiols (page 207). Thiols are named as follows:

	CH_3SH	$CH_3CH_2CH_2CH_2SH$	
IUPAC →	methanethiol (suffix)	1-butanethiol	thiophenol
Common →	(methyl mercaptan)	(*n*-butyl mercaptan)	(phenyl mercaptan)
	Alkyl + mercaptan		

✓ more acidic than O.
✓ its conjugated base is more stable.

Thiols

- S is larger than an O atom so forms a more stable anion, as a result it is more acidic than an alcohol.



Thiols can be made from alkyl halides treated with KSH, potassium hydrosulfide.

. nucleophiles 's thiols احنا بنستخدم (اللحظين)

Thiols

Thiols are easily oxidized to disulfides, this provides cross-linking in proteins and synthetic rubber compounds (vulcanization).

[O] is H_2O_2 or I_2