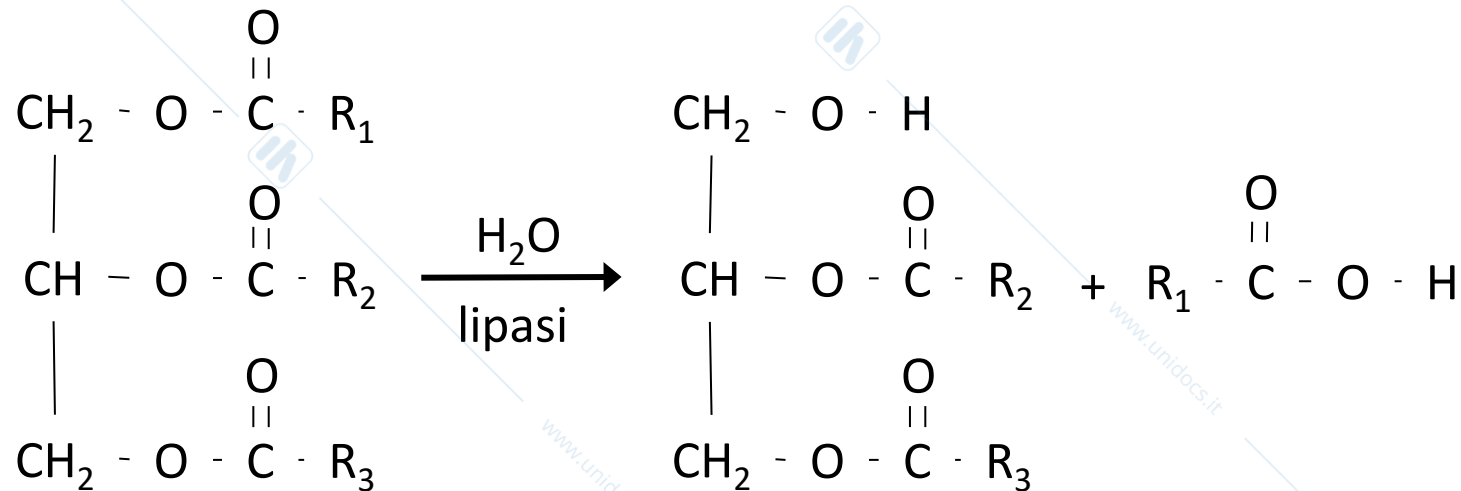


# La degradazione idrolitica

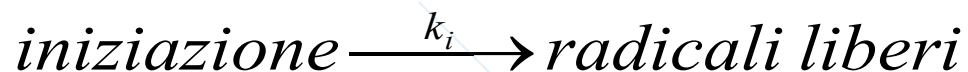


# Fattori predisponenti la degradazione idrolitica

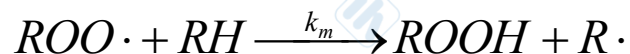
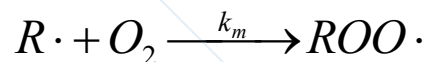
- ✚ **Presenza di acqua:** l'incremento dell'acidità percentuale non si ha nell'olio bensì nell'oliva
- ✚ **Contatto tra trigliceride e lipasi:** la lipasi è localizzata all'esterno della cellula oleifera. La rottura della parete cellulare della cellula oleifera porta le goccioline di grasso a contatto con l'enzima. In una oliva sana il valore dell'acidità sarà perciò basso, mentre in un oliva più o meno lacerata avremo valori più elevati di acidità
- ✚ **Il valore dell'acidità percentuale è indicativo della qualità della materia prima di partenza**

# La degradazione ossidativa

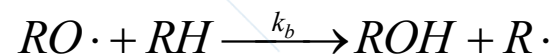
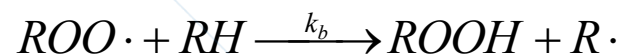
## Iniziazione



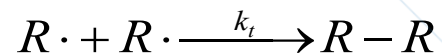
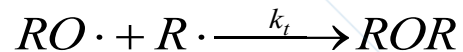
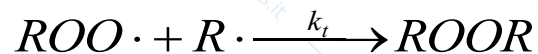
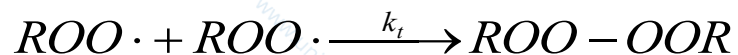
## Propagazione, fase monomolecolare



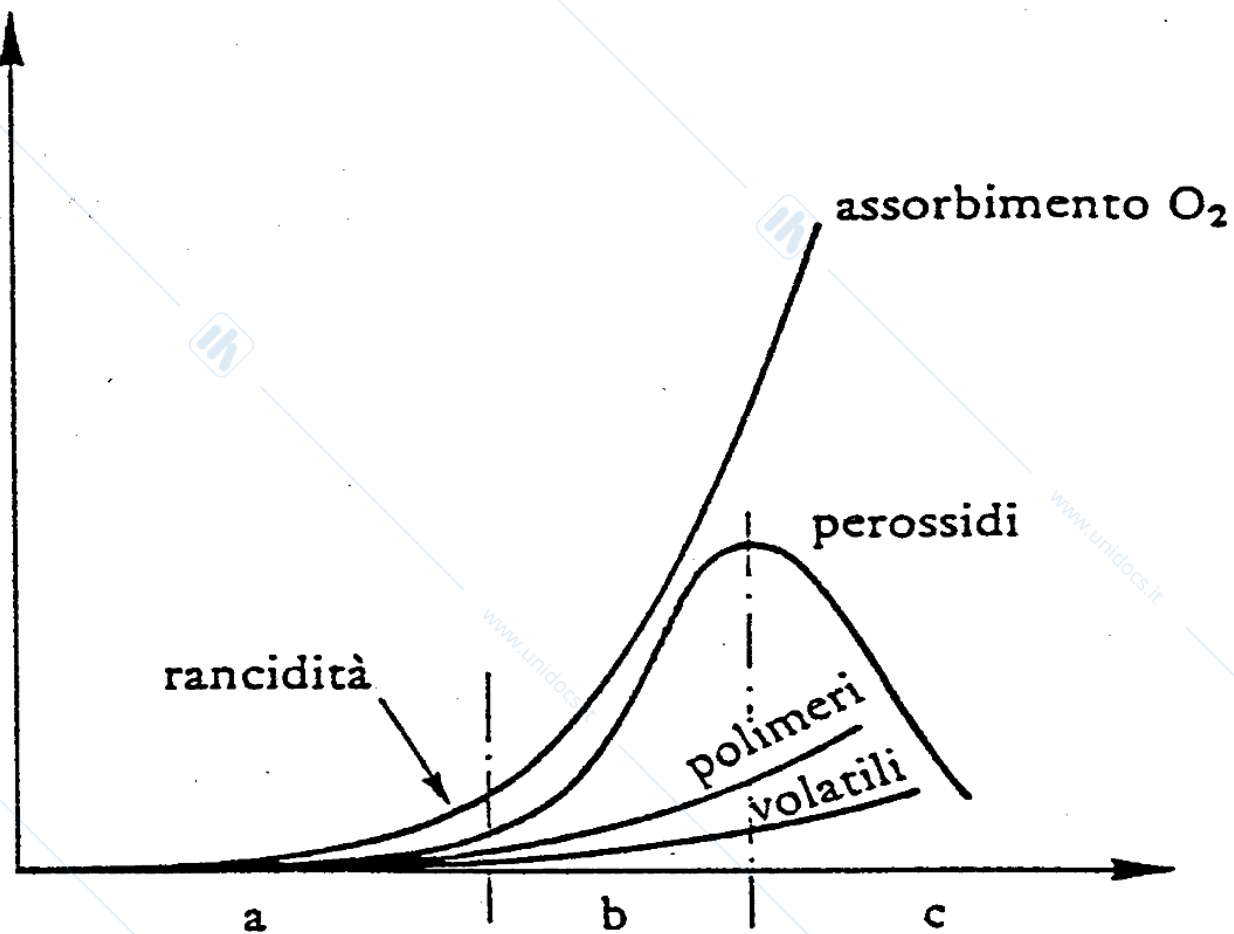
## Propagazione, fase bimolecolare



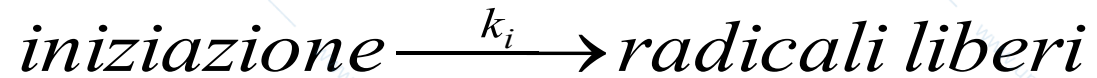
## Terminazione



# Ossidazione



# Iniziazione

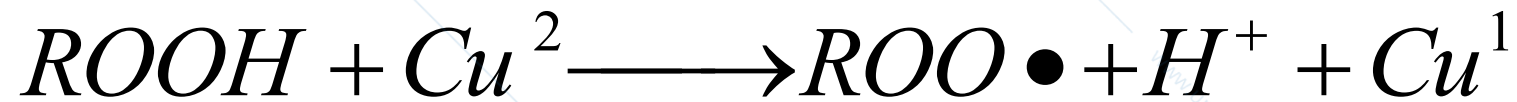
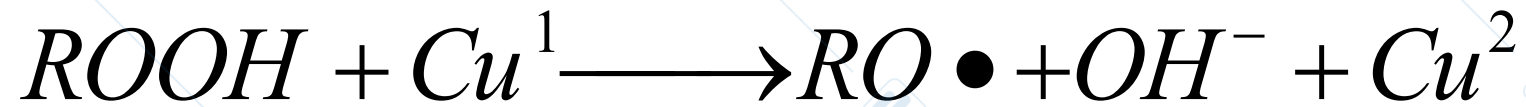


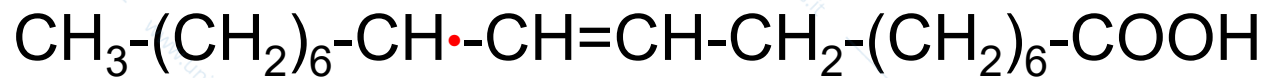
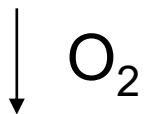
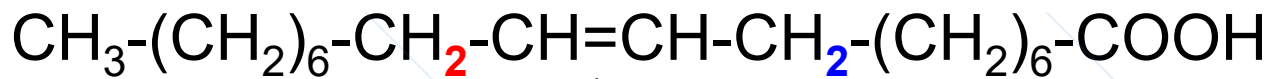
# Clorofille



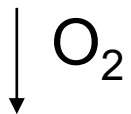
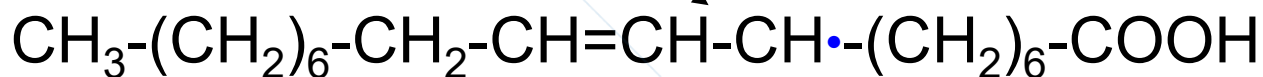
# Iniziazione

*iniziazione*  $\xrightarrow{k_i}$  *radicali liberi*

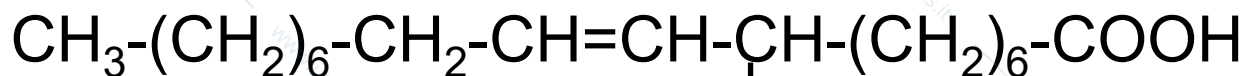




oppure

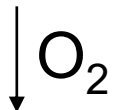


oppure



RH





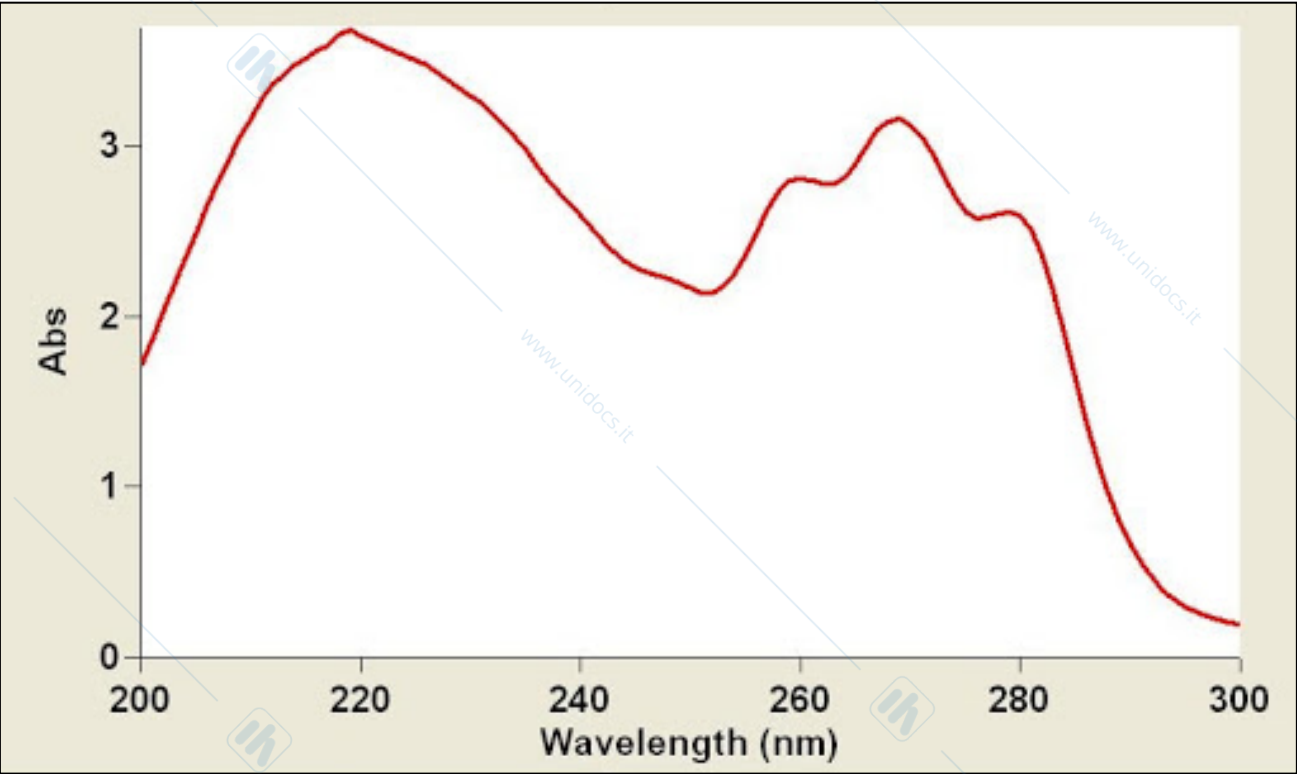
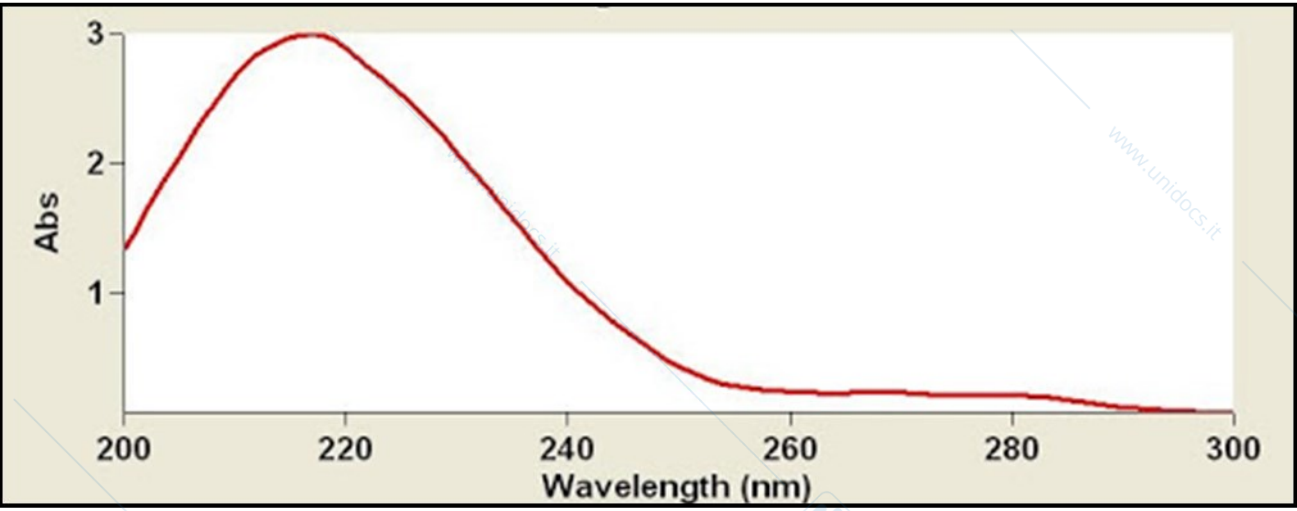
Idroperossido

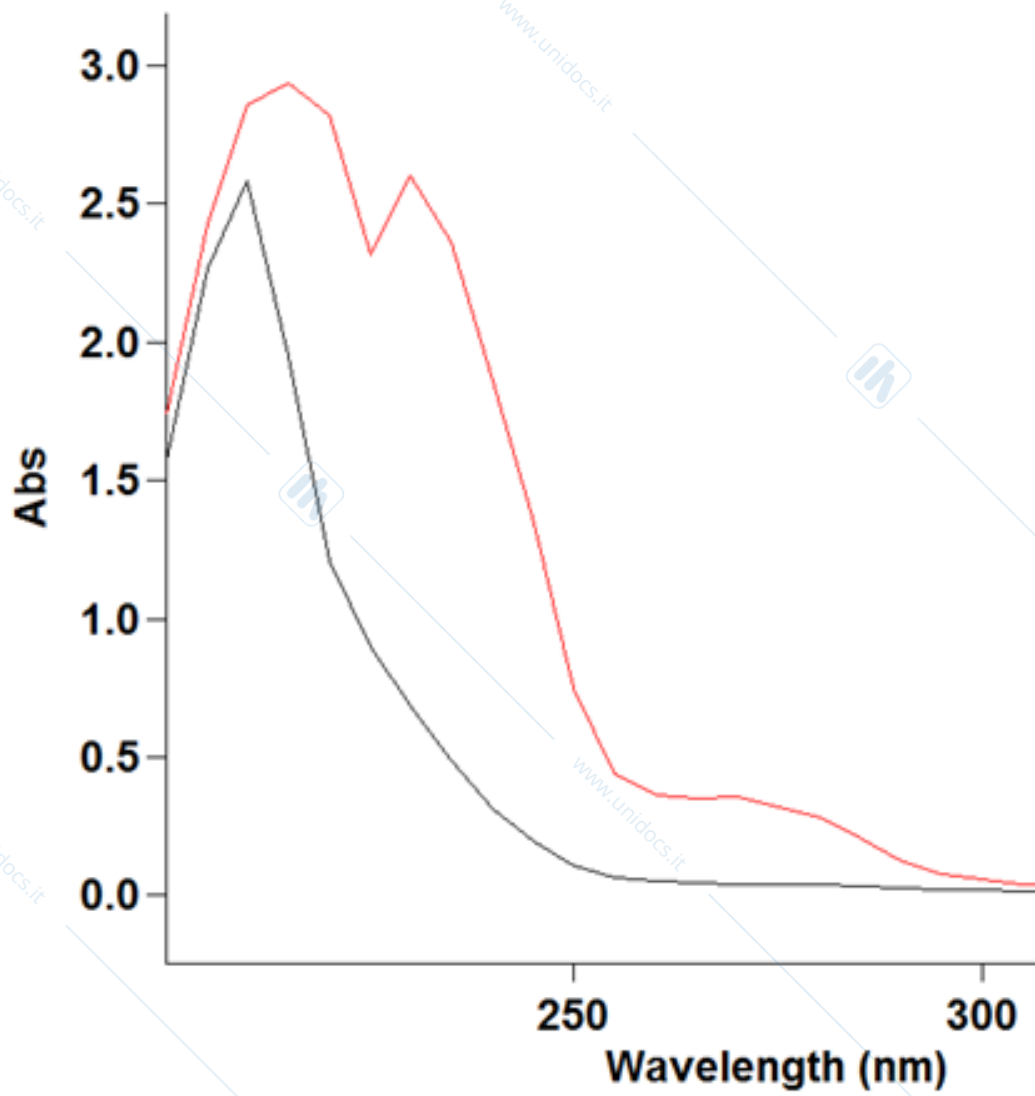


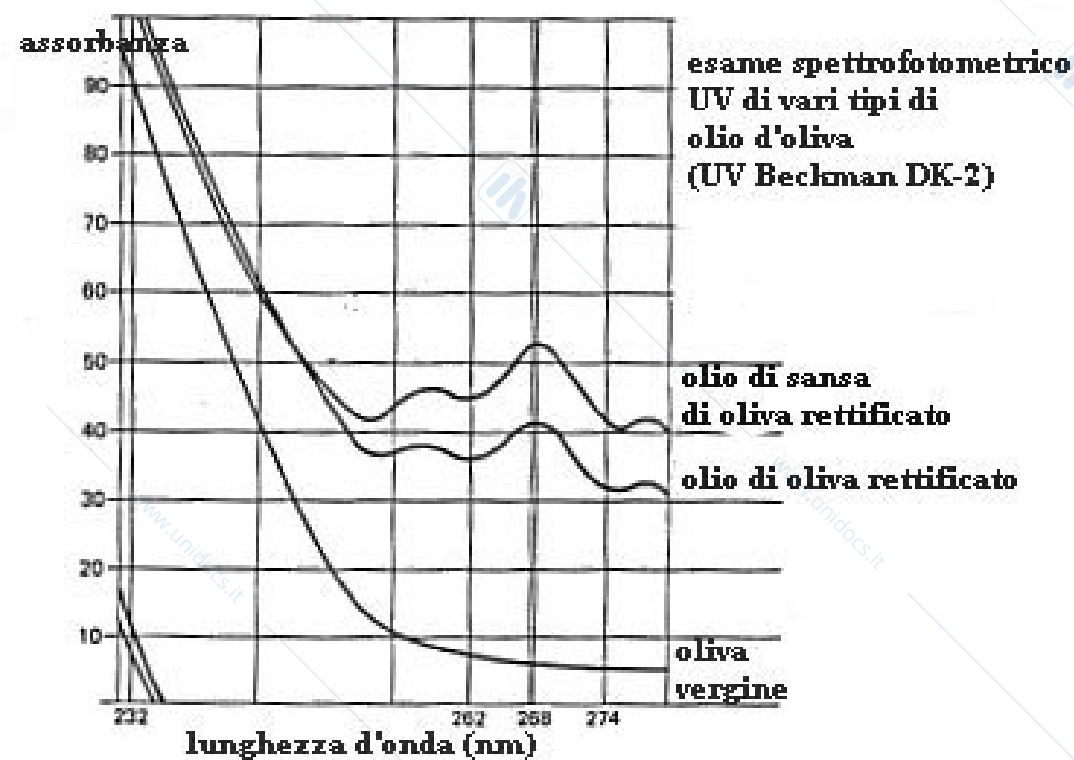
Idroperossido diene  
coniugato



Idroperossido diene  
coniugato







$$OA (\Delta K) = OE - (AH + HE)$$

$$\Delta K = K_{270} - (AH + K_{274}) \quad (1)$$

Considerando i triangoli BGC e AHC poniamo:

$$BG:GC = AH:HC$$

dove:

$$AH = \frac{BG \times HC}{GC}$$

considerando che:

$$BG = K_{266} - K_{274}$$

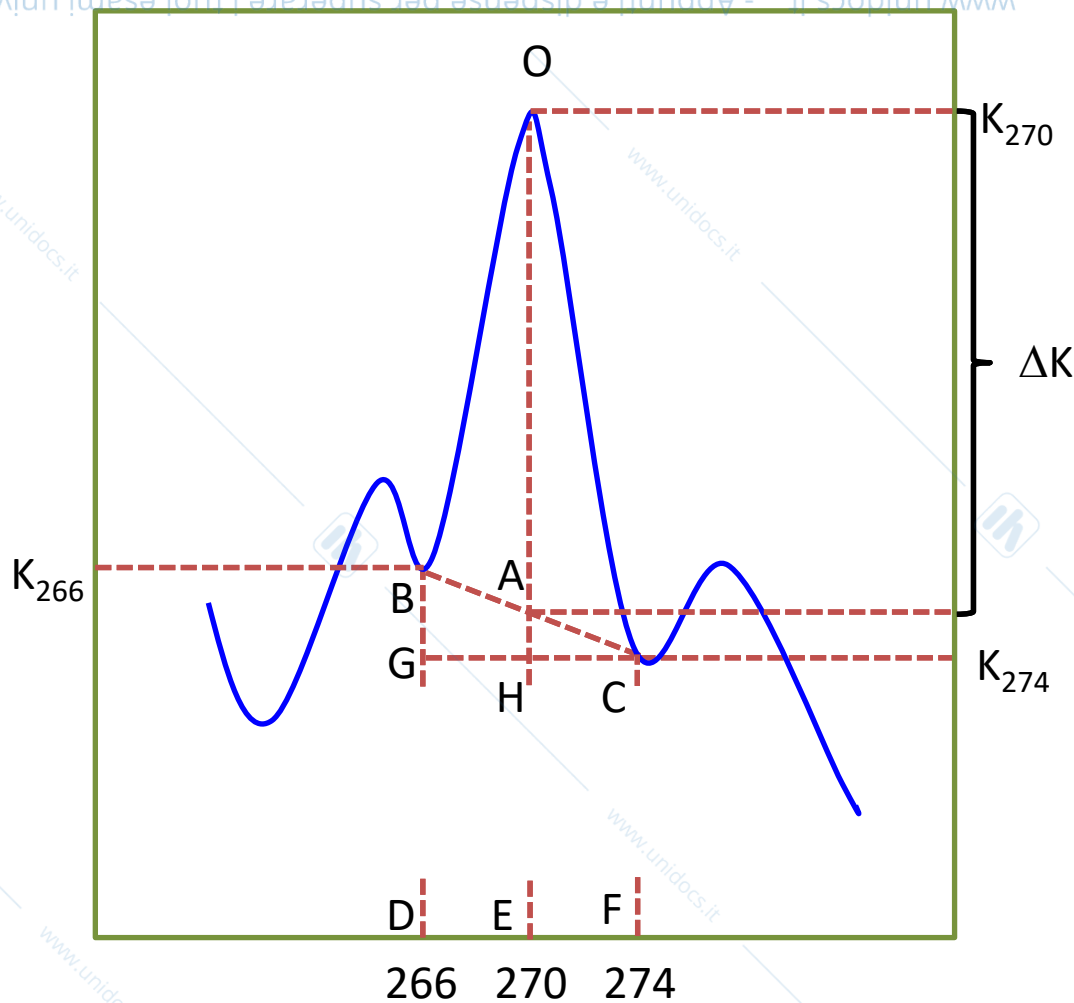
$$HC = 4 \text{ nm } (\lambda)$$

$$GC = 8 \text{ nm } (\lambda)$$

sostituendo alla (1) avremo:

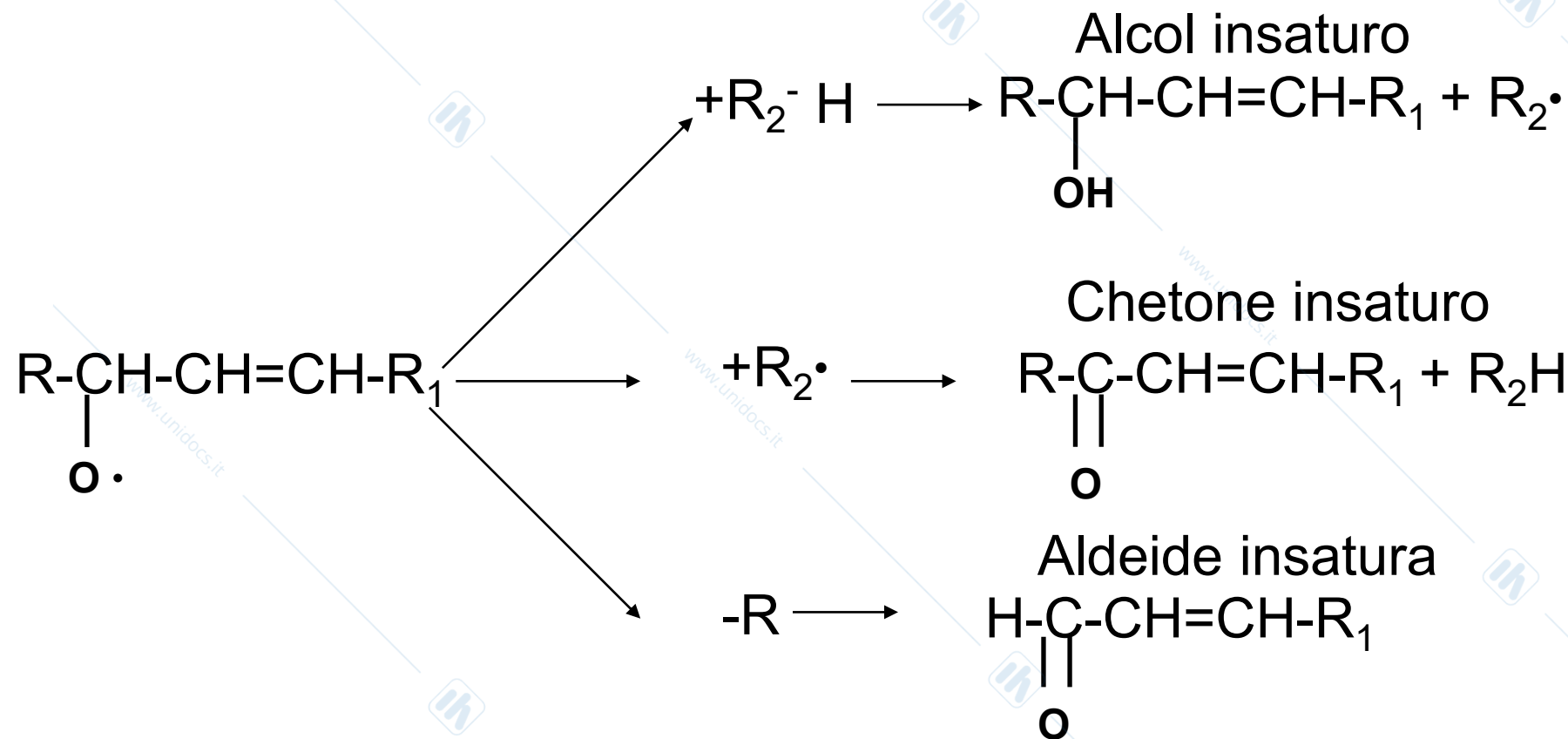
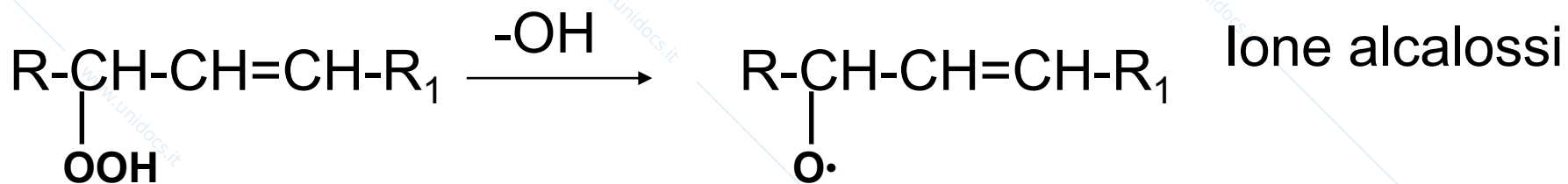
$$\Delta K = K_{270} - \left( \frac{K_{266} - K_{274} \times 4}{8} + K_{274} \right)$$

$$\Delta K = K_{270} - \left( \frac{K_{266} - K_{274} + 2K_{274}}{2} \right) \quad (2)$$



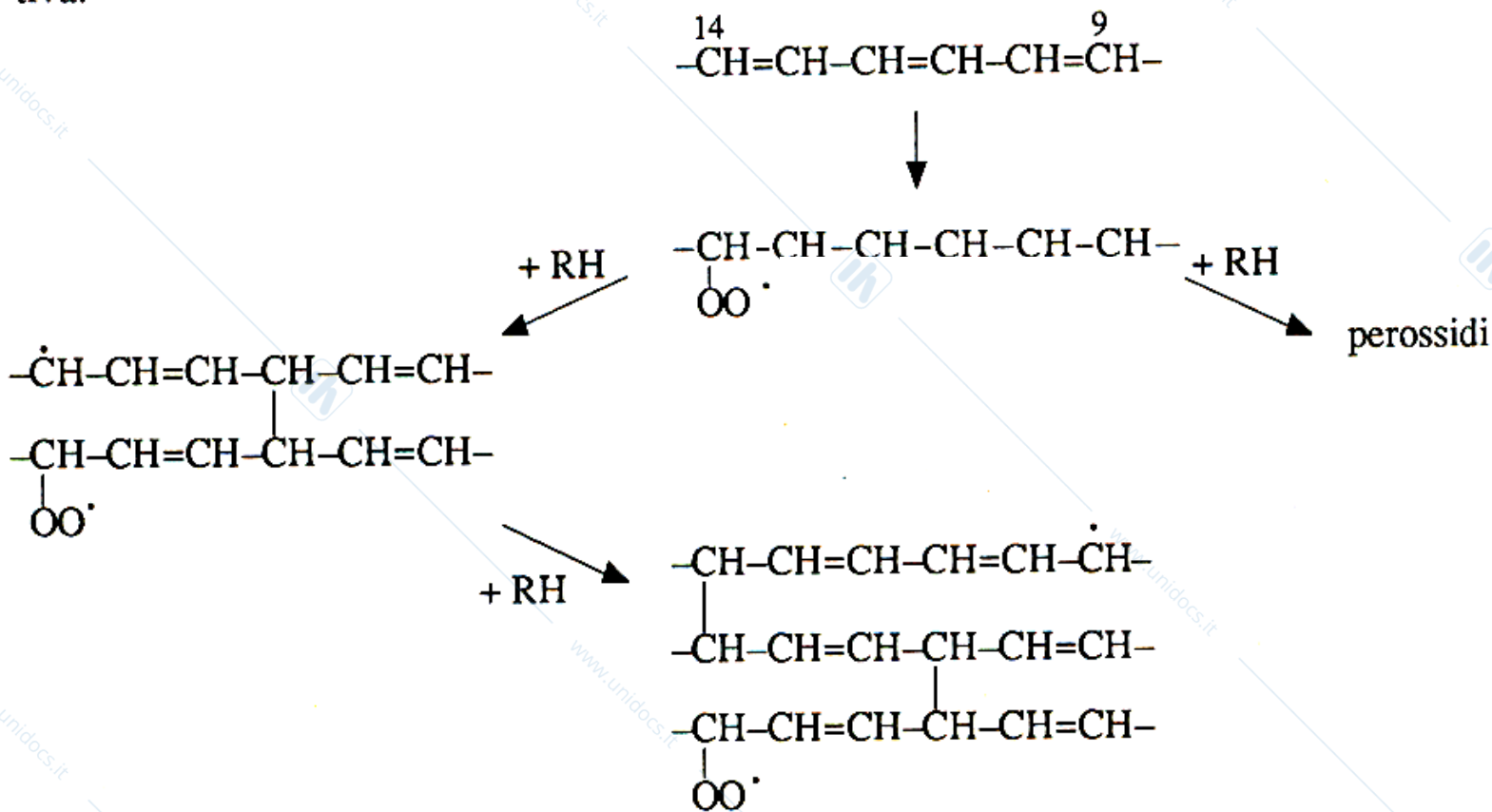
$$\Delta K = K_{270} - \left( \frac{K_{266} - K_{274}}{2} + K_{274} \right)$$

$$\Delta K = K_{270} - \left( \frac{K_{266} + K_{274}}{2} \right) \quad (2)$$



# Sviluppo di composti ad elevato peso molecolare

tiva:



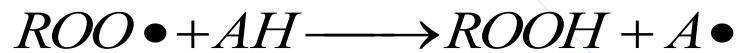
# Fattori influenti sulla autossidazione dei grassi

- ✓ contenuto in acidi grassi insaturi
- ✓ grado di insaturazione
- ✓ natura e quantità delle sostanze antiossidanti
- ✓ condizioni di conservazione
  - luce
  - temperatura
  - esposizione
- ✓ durata della conservazione

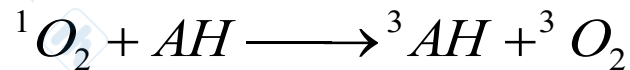
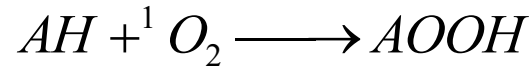


# Sostanze antiossidanti

## Tocoferoli

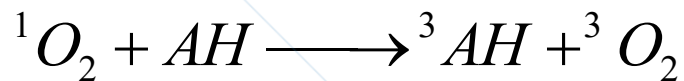


elettron-donatore



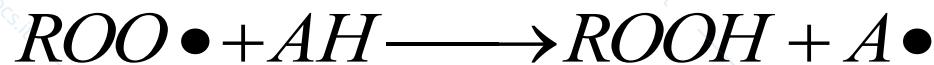
elettron-accettore

## Carotenoidi



elettron-accettore

## Polifenoli



elettron-donatore