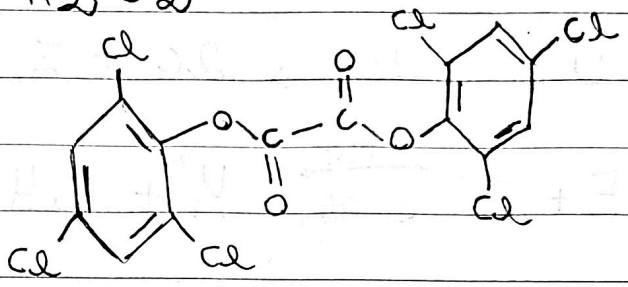
__/__/__

Mecanismo 1 e 2

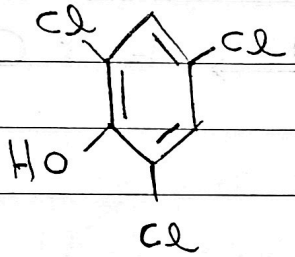
Legenda:

A = H_2O_2

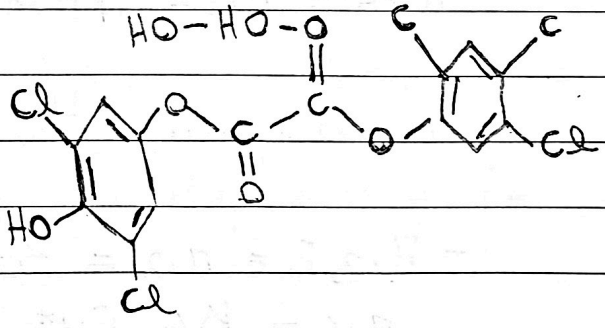
B =



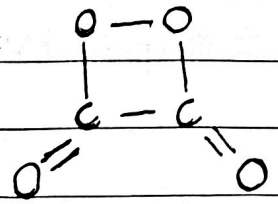
C =



D =



E =



F = Fluoráfora

H = CO_2

K* = Fluoráfora*

Mecanismo 1

Reações:

1) $A + B \xrightarrow{K_1} D$

2) $D \xrightarrow{K_2} 2C + E$

3) $E + F \underset{K_6}{\overset{K_3}{\rightleftarrows}} K^* + 2H$

4) $K^* \xrightarrow{K_4} F + Luz$

5) $K^* \xrightarrow{K_5} F + Calor$

Leis de Velocidade

1) $-r_{1A} = r_1 = K_1 C_A C_B$

2) $-r_{2D} = r_1 = K_2 . C_D$

3) $-r_{3E} = r_3 = K_3 . C_E . C_F$

$r_6 = K_6 . C_{K^*} . C_H^2$

4) $+r_{4K} = r_4 = K_4 . C_{K^*}$

5) $+r_{5K} = r_5 = K_5 . C_{K^*}$

Obs → r_4, r_5, r_6 → reagentes, logo, negativos

Taxa da luz → $R_{emit} = Q . \gamma (-r_4)$

Mecanismo 1: ___/___/___

Velocidade de formação do fluoróforo

$$r_4 = k_4 . C_K^* \qquad (1)$$

Intermediária : $[K^*]$

$$r_{K^*} = r_3 + r_4 + r_5 + r_6 = 0$$

$$r_{K^*} = k_3 . C_E . C_F - k_4 . C_K^* - k_5 . C_K^* - k_6 . C_K^* . C_H^2 = 0$$

$$r_{K^*} = k_3 . C_E . C_F - C_K^* (k_4 + k_5 + k_6 . C_H^2) = 0$$

$$C_K^* = \frac{k_3 . C_E . C_F}{(k_4 + k_5 + k_6 C_H^2)} \qquad (2)$$

Para taxa de luz

$$R_{emit} = Q . \gamma . (-r_4) = Q . \gamma . (-k_4 . C_K^*)$$

$$R_{emit} = Q . \gamma . \left[-k_4 . \left(\frac{k_3 . C_E . C_F}{(k_4 + k_5 + k_6 C_H^2)} \right) \right]$$

$$R_{emit} = Q . \gamma . -k_4 \left[\frac{k_3 . C_E . C_F}{(k_4 + k_5 + k_6 C_H^2)} \right]$$

Mecanismo 2 ___/___/___

Reações:

1) $A + B \xrightarrow{k_1} D$

2) $D \xrightarrow{k_2} 2C + E$

3) $E + F \xrightarrow{k_3} K^* + H + Luz$

5) $K^* \xrightarrow{k_5} F$

Leis de Velocidade

1) $r_1 = k_1 C_A C_B$

2) $r_2 = k_2 C_D$

3) $r_3 = k_3 C_E C_F$

5) $r_5 = k_5 C_{K^*}$

Taxa da luz -> $R_{emit} = Q \cdot \gamma \cdot r_3$

Mecanismo 2

Velocidade de formação fluoróforo

$$r_3 = k_3 C_E . C_F$$

Intermediária [K*]

$$r_{K^*} = r_3 + r_5 = 0$$

$$r_{K^*} = k_3 C_E C_F - k_5 C_{K^*} = 0$$

$$C_{K^*} = \frac{k_3 C_E C_F}{k_5}$$

Para a taxa de luz

$$R_{emif} = Q . \gamma . r_3$$

$$R_{emif} = Q . \gamma . k_3 . C_E . C_F$$