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$$K_D = \frac{C_{et}}{C_{aq}} = 0,3 \quad \text{dengan} \quad \begin{array}{l} \text{Volume eter } 100 \text{ ml} \\ \text{Volume air } 500 \text{ ml} \end{array}$$
$$k_D = \frac{3.0 - (A - Y_1) / 0.1}{Y_1 / 0.5}$$

$$30 = \frac{9 - x_1}{0,1} \cdot \frac{x_1}{0,5}$$

$$3.0 = \frac{4 - x_1}{0.1} + \frac{0.5}{x_1}$$

$$3.0 = 2 - 0.5 Y_1$$

$$0,3 \gamma_1 \rightarrow 2 - 0,5 \chi_1$$

$$0.3 x_1 + 0.5 x_2 = 2$$

$$0,8 \quad \chi_1 = 2.$$

$$Y_1 = \frac{2}{0,8} = Y_1 = 2,5 \text{ lapisan air dan } 1,5 \text{ lapisan eter.}$$

* Pada ekstraksi kedua.

$$k_D = 3,0 = \frac{(2,5 - x_2) / 0,1}{x_2 / 0,5}$$

$$3.0 = \frac{2.5 - x_2}{0.1} \quad , \quad \frac{x_2}{0.5}$$

$$3.0 = \frac{2.5 - x_2}{0.1} : \frac{x_2}{0.5}$$

$$3 = \frac{2.5 - x_2}{0.1} \times \frac{0.5}{x_2}$$

$$3 = \frac{1.25 - 0.5 x_2}{0.1 x_2}$$

$$0.3 x_2 = 1.25 - 0.5 x_2$$

$$0.3 x_2 + 0.5 x_2 = 1.25$$

$$0.8 x_2 = 1.25$$

$$x_2 = \frac{1.25}{0.8}$$

$x_2 = 1.56 \text{ gram}$ di lapisan air dan 0.94 di lapisan eter.

* Ekstraksi Ketiga.

$$KD = 3 = \frac{(1.56 - x_3)}{0.1} : \frac{x_3}{0.5}$$

$$3 = \frac{1.56 - x_3}{0.1} : \frac{x_3}{0.5}$$

$$3 = \frac{0.78 - 0.5 x_3}{0.1 x_3}$$

$$0.3 x_3 = 0.78 - 0.5 x_3$$

$$0.8 x_3 = 0.78$$

$$x_3 = \frac{0.78}{0.8} = 0.975 \text{ gram di lapisan air}$$

0.585 gram di lapisan eter.

PAPERLINE

* Ekstraksi ke Empat

$$K_D = 3 = \frac{(0,975 - X_4) / 0,1}{X_4 / 0,5}$$

$$3 = \frac{(0,975 - X_4) \times 0,5}{0,1 X_4}$$

$$3 = \frac{0,4875 - 0,5 X_4}{0,1 X_4}$$

$$0,3 X_4 = 0,4875 - 0,5 X_4$$

$$0,3 X_4 + 0,5 X_4 = 0,4875$$

$$0,8 X_4 = 0,4875$$

$$X_4 = \frac{0,4875}{0,8}$$

$X_4 = 0,609$ gr di lapisan air dan $0,366$ gram di lapisan eter.

* Ekstraksi ke 5.

$$K_D = 3 = \frac{(0,609 - X_5) \cdot X_5}{0,1 \cdot 0,5}$$

$$3 = \frac{(0,609 - X_5) \times 0,5}{0,1 X_5}$$

$$3 = \frac{0,3045 - 0,5 X_5}{0,1 X_5}$$

$$0,3 X_5 = 0,3045 - 0,5 X_5$$

$$0,8 X_5 = 0,3045$$

$$X_5 = \frac{0,3045}{0,8}$$

$0,38$ gr di lapisan air dan $0,23$ gr di lapisan eter.

Jadi total yang terekstraksi pada pelarut eter
 $1,59 + 0,99 + 0,585 + 0,366 + 0,23$
 $= 3,71 \text{ gram}$

b) Vektor yang digunakan 100 ml
 Semakin sedikit eter yang digunakan sebagai pelarut
 maka asam butirat yang terekstraksi semakin
 sedikit.

5. Pada Gambar 3-3.

$$K_D = \frac{C_B}{C_A} \quad W_0 = W_A + W_B$$

$$W_B = C_B V_B$$

$$W_A = C_A V_A$$

$$\text{Fraksi A} = \frac{W_A}{W_A + W_B} = \frac{C_A V_A}{C_A V_A + C_B V_B}$$

$$= \frac{C_A V_A}{C_A V_A + C_B V_B}$$

$$= \frac{V_A}{V_A + \frac{C_B}{C_A} V_B}$$

$$= \frac{V_A}{V_A + K_D V_B}$$

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at yang tersisa di lapisan air.

$$W_{A1} = W_0 \cdot \left(\frac{V_A}{V_A + K_D V_B} \right)^5$$

Volume air. V_A
Volume eter V_B .

$$W_{A1} = 1 = \left(\frac{500 \text{ ml}}{500 \text{ ml} + 3(100 \text{ ml})} \right)^5$$
$$= 4 \left(\frac{500 \text{ ml}}{800 \text{ ml}} \right)^5$$

$$= 4 (0.625)^5$$

$$= 4 (0.095)$$

$$= 0.38 \text{ , asam butirat yg tersisa di lapisan air.}$$