



萃取法

Extraction

<http://orglab.thu.edu.tw>



1. Extraction : separate with different partition in two immiscible phase

liquid/liquid extraction → separatory funnel

★ solvent properties : like dissolve like

immiscible → two phase

- polarity
- function group
- organic in organic



$$\kappa = (\text{conc. of } i \text{ in org. phase}) / (\text{conc. of } i \text{ in aq. phase})$$
$$= (\text{solubility of } i \text{ in org. solvent}) / (\text{solubility of } i \text{ in water})$$

Ex : Si (ether) = 12g/100ml , Si (H₂O) = 6g/100ml

6g i in 100ml H₂O extract with 100ml ether

Ans: $\kappa = (12/100) / (6/100) = 2$

if X g in ether layer then (6-X)g in H₂O layer

$$\kappa = (X/100) / [(6-X)/100] = 2$$

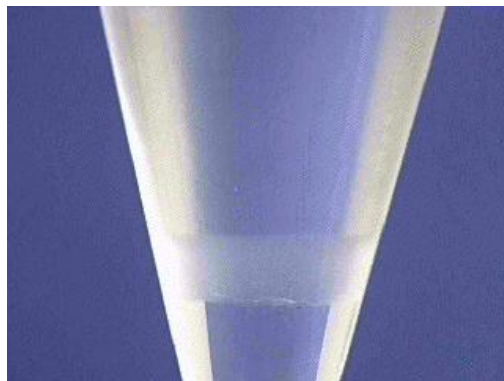
X = 4g (in ether) ; 2g in H₂O



- * several small extraction are better than large one
- * extract always keep in 3 times

(1) emulsion

a. stand

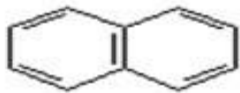
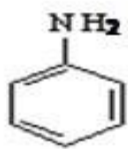
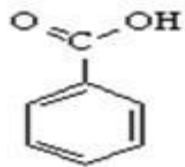


b. add NaCl increase ionic strength



(2) pressure building up → reduce pressure

(3) remove water (in the organic layer)



(in ether.)



取 5mL

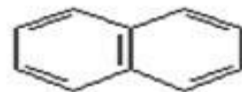
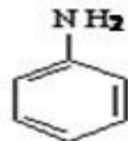
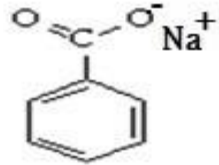
extract with 4M NaOH (6mL)

aqueous layer

organic layer

(下層)

(上層)



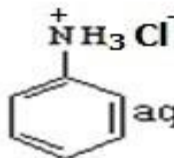
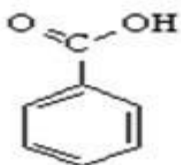
add 6M HCl (6mL) in ice bath

(stir)

collect the white solid
(可用冰水洗固體)

dry (suction)

weight



aqueous layer

(下層)



extract with 6M HCl (5mL)

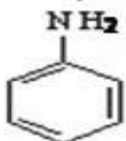
organic layer

(上層)



add 4M NaOH (>8mL) in ice bath

collect the liquid
(upper layer, brown)



? mL



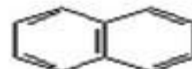
(dry with MgSO4)

filter
(wash with ether)



evaporation (in hood)

weight



1. 繳交分離產物。
2. 不用抄數據給我,只要告訴助教回收重量或體積,回收率回去再算。
3. 實驗問題：2, 3, 5





Thank you !

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