

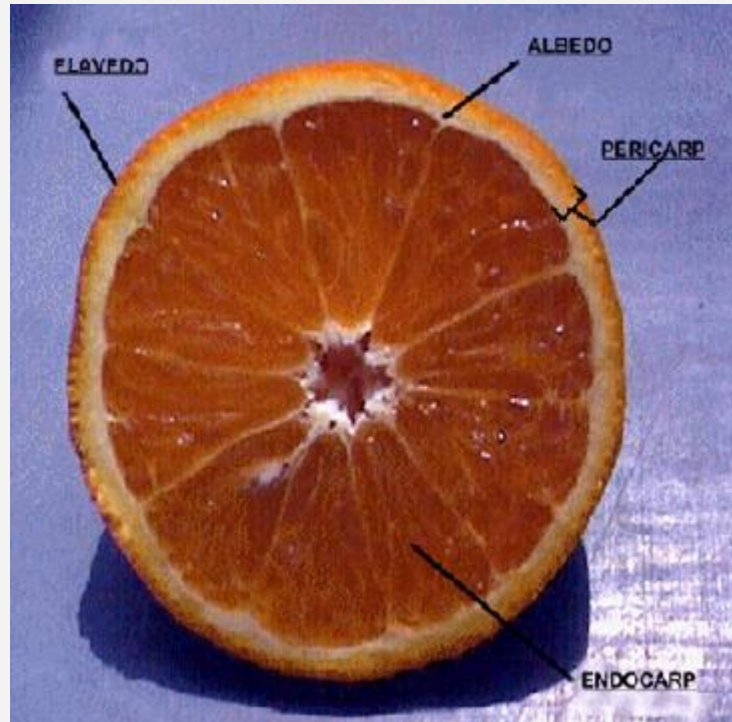


**CITRIC ACID
EXTRACTION**

CITRIC ACID EXTRACTION FROM LEMON

CITRIC ACID

Citric acid is one of the products obtained by fermentation. It is produced by *Aspergillus niger* from glucose and sucrose in molasses.



EXPERIMENTAL PROCEDURE:

Lemons are divided into 2 pieces, squeezed then measured in a graduated cylinder. (A ml)



20 ml of lemon juice is diluted with equal volume water.



10% NaOH solution is added slowly (to neutralize medium) and controlled with turnusole.



Mixture is filtered using cotton and put into a beaker. CaCl₂ solution is added until white precipitate (Ca-citrate) occurs then, boiled on the burner for 1-2 minutes.

...is filtered (folded filter paper)

PRECIPITATE
(white, Ca - citrate)

FILTRATE

2% H_2SO_4 solution is added slowly.
(In order to make citric acid unbound by
precipitating CaSO_4)

(If it is added too much, it becomes carbonized
when heated in capsules)

CaSO_4 is precipitated.

...is filtered. (fluted filter paper)

Filtrate (Citric acid)

Precipitate (CaSO_4)

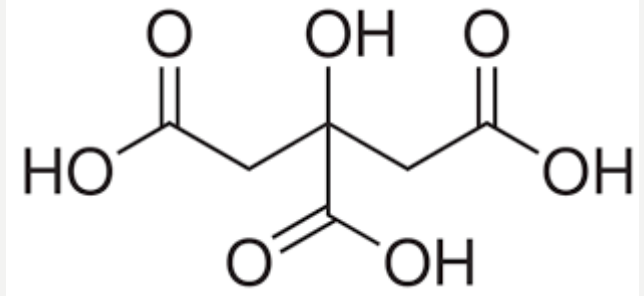
(1-2 ml of filtrate is taken and 2% H_2SO_4 is added.
It is checked whether there is precipitation)

The filtrate is concentrated on low heat, in a capsule.

Forming crystals are dried
in oven ($80\text{ }^\circ\text{C}$).

...is weighed. (B g)
% yield is calculated.

Yield calculation:



A ml lemon juice

B g crystal (citric acid)

100 ml

X g

Yield: % X g/ml