



Sodium citrate synthesis

Lab 2

Organic pharmaceutical Chemistry lab

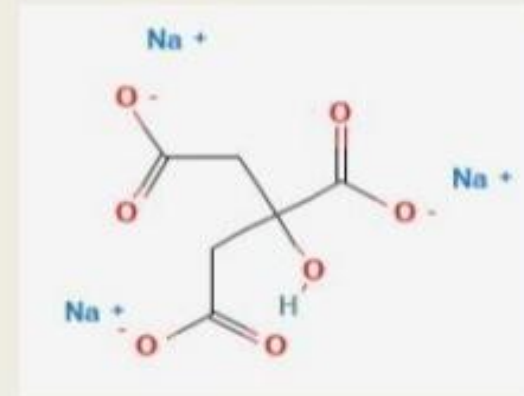
2nd semester /Third stage

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SODIUM CITRATE SYNTHESIS

Sodium citrate refers to sodium salts of citric acid. Monosodium citrate, disodium citrate, and trisodium citrate are the three types of sodium salts of citric acid. However, sodium citrate mostly refers to the third type, that is, trisodium citrate. Its molecular formula is $\text{Na}_3\text{C}_6\text{H}_5\text{O}_7$



PROPERTIES OF SODIUM CITRATE

molecular weight or molar mass is 258.068 g/mol. Its appearance is white and comes in the form of crystalline powder, or granular crystals. It's soluble in water and becomes deliquescent upon contact with moist air. It's insoluble in alcohol. It has a sour taste like citric acid.

The melting point of sodium citrate is anywhere $> 300^{\circ}\text{C}$

APPLICATION OF SODIUM CITRATE

Food and beverage:

- as a pH control agent, e.g., for gelation control, buffering and preservative enhancement
- As a flavor adjunct, to improve taste
- As a chelating agent to improve the action of antioxidants and prevent spoilage of foods such as seafood

APPLICATION OF SODIUM CITRATE

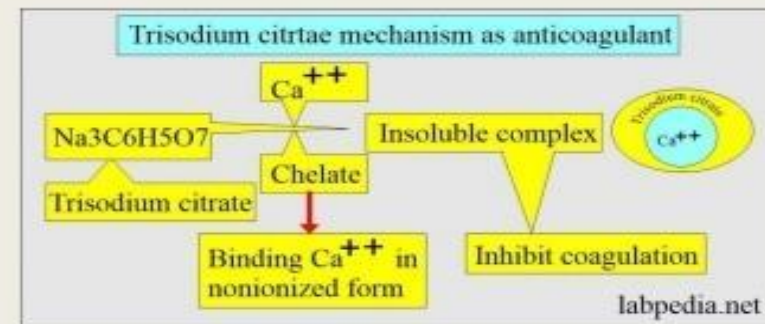
Pharmaceutical:

- Effervescent tablets preparations: The reaction of citric acid and bicarbonate liberates carbon dioxide, which aids the dissolution of active ingredients and improves palatability.
- pH control: Citric acid, with sodium citrate, is an efficient buffering system used in a variety of pharmaceutical and cosmetic applications for improving stability .

APPLICATION OF SODIUM CITRATE

Medical View:

- Used as an anticoagulant during blood studies by prevents activation of the clotting cascade by chelating calcium ions.



- It is used as alkalinizing agent. It works by neutralizing excess acid in the blood and urine. It has been indicated for the treatment of metabolic acidosis

PROCEDURE OF SYNTHESIS

synthesis method of sodium citrate comprises the following steps:

- Synthesis procedure: dissolving citric acid in acetone, and dissolving sodium bicarbonate in D. W .

the solubility of sodium bicarbonate is 1g in 11ml .

- Add sodium bicarbonate solution gradually to citric acid solution , in each
- addition , intense reaction Will start produce lots of Co₂ bubbles .

PROCEDURE OF SYNTHESIS

Growing of crystals:

By evaporating method :evaporate the water at high temperature but not exceed the melting point of sodium citrate which is 300c°