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Citrate Buffer

 In 1 collection

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Protocol status: Working

We use this protocol and it's working

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Abstract

A buffer solution has the function of resisting changes in pH even when adding powerful acids or bases. However, in the physiological environment the buffered system also provides cofactors for enzymatic reactions, critical salts and even essential nutrients for cells and tissues. Therefore, when trying to reproduce biological conditions in vitro, we must make the appropriate choice of the buffer. After all, it will provide the appropriate medium in which reactions will occur.

Materials

- Deionized Water
- pH Meter (sensitive)
- Citric Acid
- Sodium Citrate Dihydrate

Safety warnings

! Wear personal protective equipment: gloves, lab coat and mask.

Before start

Organize your workspace.

Make sure all solutions and equipment are available.

Citrate Buffer


1

Note

pH range:  3.0 to  6.2

(a) 0.1 M Citric acid: 19.21 g L⁻¹ (M.W.: 192.1 g mol⁻¹)

(b) 0.1 M Sodium citrate dihydrate: 29.4 g/l (M.W.: 294.0 g mol⁻¹)

Mix citric acid and sodium citrate solutions in the proportions indicated and adjust the final volume to  100 mL with deionized water.

mL of Citric acid	46.5	40.0	35.0	31.5	25.5	20.5	16.0	11.8	7.2
mL of Sodium citrate	3.5	10	15.0	18.5	24.5	29.5	34.0	38.2	42.8
pH	3.0	3.4	3.8	4.2	4.6	5.0	5.4	5.8	6.2

2 Adjust the final pH using a sensitive pH meter.

Note

The use of pentahydrate salt of sodium citrate is not recommended.