

SUBJECT - CHEMISTRY

CLASS - B.Sc (Hons) PART - II

PAPER - IV

TOPIC - Tartaric acid

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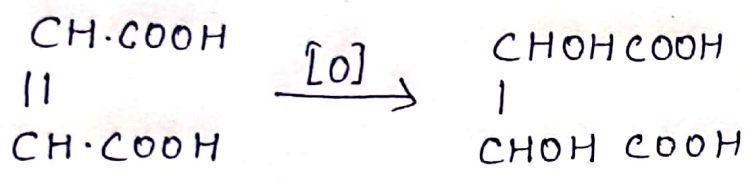
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Q How are tartaric acid obtained?

Ans (-) - Tartaric acid is obtained from racemic acid by the methods of resolution. The most convenient method consists in adding (-) cinchonine (alkaloid) to the boiling solution of racemic acid. Mixture of (+) - cinchonine (+) - tartrate and (+) - cinchonine (-) - tartrate is formed. They differ in solubility. On cooling (+) - cinchonine (-) - tartrate crystallises out first. This is then decomposed by alkali to give salt of free acid. The salt of the acid on treatment with excess of mineral acids sets free (-) - tartaric acid. The solution on concentration and cooling will give crystals of (-) - tartaric acid. Racemic acid occurs in grape juice along with (+) - tartaric acid and can be obtained from the mother liquor after separation of (+) - tartaric acid. It can also be obtained by mixing equimolecular proportions of (+) and (-) acid. On heating (+) - acid with water in a sealed tube at 175° racemisation occurs and (+) - acid is partially converted into racemic acid. Synthetic tartaric acid is either racemic or mixture of racemic and mesotartaric acid. It crystallises as hemihydrate, $(C_4H_6O_6)_2 \cdot H_2O$

Mesotartaric acid is obtained by heating (+)-tartaric acid with little water in a sealed tube at 165° or with NaOH solution. In the last case, some racemic acid is also formed. It may also be obtained by oxidation of maleic acid with dil. alkaline KMnO4 solution.



fumaric acid on similar treatment gives (±)-acid