

APPLICATION OF PEROXY ACID AS REAGENT FOR MICRODETERMINATION OF VITAMIN C. COMPERISION BETWEEN POTENTIOMETRY AND TITRIMETRY METHODS FOR DETERMINATION OF ASCORBIC ACID IN THE PRESENCE TIOLS IN PHARMACEUTICAL PREPARATIONS

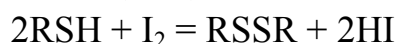
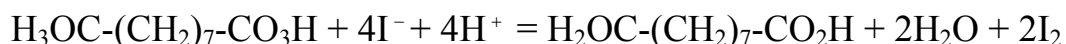
Malay B.B., Blazheyskiy M.Ye

The National University of Pharmacy, Kharkiv, Ukraine

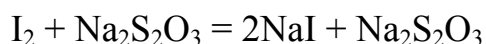
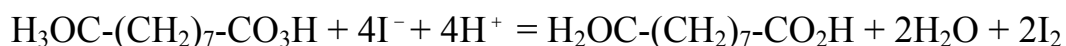
Blazejowski@ukr.net

In view of the widespread use of vitamin C (ascorbic acid) several methods were developed for the determination of ascorbic acid in pharmaceutical preparations. Titrimetric (iodimetric and with 2,6-dichlorophenolindophenolate (DCIP)) and photometric methods commonly used to assay ascorbic acid. Unfortunately these methods are not applicable for ascorbic acid mixtures with thiols. Famous method requires the masking of thiol by cyanoethylating it with acrylonitrile. The cyanoethylated products of thiols do not hamper the reaction and that ascorbic acid could be titrated with chloramine-T using, DCIP as indicator.

Such limitations have encouraged chemist to look for better alternative methods. On a project on the determination of sulfur compounds it is found that potassium diperoxyazelaic acid reacts stoichiometrically and quantitatively with ascorbic acid but does not react with strong reducing agents like thiol under identical conditions. Resolutions of mixtures of vitamin C with thiols has been successfully carried out by first potentiometric titrating the vitamin C content with diperoxyazelaic acid. Upon dilution of the contents, thiols can be titrated with standard diperoxyazelaic acid solution in the presence of potassium iodide. Thiols are quantitatively oxidized to their corresponding disulfides with diperoxyazelaic acid in the presence of potassium iodide.



This method is really the same as titrating ascorbic acid directly with iodine solution (see Vitamin C method using iodine). However, this method is more reliable as the diperoxyazelaic acid solution is more stable than iodine as a primary standard.



The method has comparable precision it is even gave less error percent. Peroxymetric assay also is faster and easier to perform and could be used for routine determination.