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Application of Potassium Chromate-Diphenylcarbazide in the Quantitative Determination of Ascorbic Acid by Spectrophotometry

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Abstract: A spectrophotometric procedure for the determination of ascorbic acid in pure form and in a number of pharmaceutical preparations and real samples has been developed that offers the advantages of simplicity, accuracy, precision and sensitivity over many other methods. The method is based on the oxidation of ascorbic acid by a known excess amount of potassium chromate followed by the estimation of the unreacted amount of chromate by reactions with sym-diphenylcarbazide. The reacted oxidant corresponds to the ascorbic content. At the maximum absorption of 548 nm, Beer's law is obeyed up to 5 μ g/mL of ascorbic acid. Statistical treatment of the experimental results indicates that the procedure is precise and accurate. Excipients used as additives in pharmaceutical formulations did not interfere in the proposed procedure. The reliability of the method was established by parallel determination against the 2,6-dichlorophenolindophenol methods. The procedure described was successfully applied to the determination of bulk drugs, in pharmaceutical formulations and real samples.

Key Words: Ascorbic acid determination, Spectrophotometry, Potassium chromate, Chromium-diphenyl-carbazide complex

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