

The use of surrogate reference standards in quantitative high performance liquid chromatography-analysis of metformin hydrochloride tablets

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The study sought to investigate the use of compounds that were physico-chemically related to metformin hydrochloride (analyte) to be used as surrogate reference standard for its assay using High Performance Liquid Chromatography. The surrogate reference standards were metronidazole and paracetamol. A reversed-phase isocratic HPLC method was developed and validated. Acetate buffer and methanol was used to control the pH of the mobile phase. The mean retention times obtained were metformin hydrochloride 3.4 ± 0.03 min, Metronidazole 5.3 ± 0.20 min and paracetamol 4.7 ± 0.02 min. The peak areas obtained from the chromatograms and the concentrations of the solutions analysed and used to find the surrogate constant K for metformin hydrochloride are metronidazole 1.3262 ± 0.02 and paracetamol 0.8623 ± 0.02 . The molecular weight ratio of analyte to surrogate affected K. t-test and F-test were carried out to compare the results obtained from the new method and the standard method in the British Pharmacopoeia and it was found out that there was no significant difference between the two methods. The similarity in solubility between analyte and surrogate is found to be favourable as the two methods did not differ significantly in their precision.

Biography

Christiana Tetteh Agbeko has completed her M.Sc. at the age of 30 years from Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana, West Africa. Her postgraduate studies were in Pharmaceutical Analysis and Quality Control from the Department of Pharmaceutical Chemistry of KNUST. She is the quality control officer of the drug production session, Ashanti Regional Medical Stores of Ghana Health Service. She has exhibited professionalism and distinguished herself as emerging young female biomedical scientist. She has served in a drug regulatory organization such as the Ghana Food and Drugs Authority, in West Africa.

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