

Determination of the Stability of Haloperidol Tablets and Phenytoin Capsules Stored in the Inpatient Dispensary System (Swisslog) by the Respective HPLC and Raman Spectroscopy Assay

Authors : Carol Yue-En Ong, Angelina Hui-Min Tan, Quan Liu, Paul Chi-Lui Ho

Abstract : A public general hospital in Singapore has recently implemented an automated unit-dose machine in their inpatient dispensary, Swisslog, with the objective of reducing human error and improving patient safety. However, a concern in stability arises as tablets are removed from their original packaging (bottled loose tablets/capsules) and are repackaged into individual, clear plastic wrappers as unit doses in the system. Drugs that are light-sensitive and hygroscopic would be more susceptible to degradation as the wrapper does not offer full protection. Hence, this study was carried out to study the stability of haloperidol tablets and phenytoin capsules that are light-sensitive and hygroscopic respectively. Validated HPLC-UV assays were first established for quantification of these two compounds. The medications involved were put in the Swisslog and sampled every week for one month. The collected data was analysed and showed no degradation over time. This study also explored an alternative approach for drug stability determination-Raman spectroscopy. The advantage of Raman spectroscopy is its high time efficiency and non-destructive nature. The results suggest that drug degradation can indeed be detected using Raman microscopy, but further research is needed to establish this approach for quantification or qualification of compounds. NanoRam®, a portable Raman spectroscope was also used alongside Raman microscopy but was unsuccessful in detecting degradation in this study.

Keywords : drug stability, haloperidol, HPLC, phenytoin, raman spectroscopy, Swisslog

Conference Title : ICPSP 2016 : International Conference on Pharmaceutical Sciences and Pharmacology

Conference Location : Paris, France

Conference Dates : January 21-22, 2016