

ABSTRACT

Metronidazole (MTZ) is a type of 5-nitroimidazole, which is a semi-synthetic compound. It possesses a diverse range of therapeutic properties, acting as an anti-amoebic, anti-protozoal, antibacterial, anti-parasitic, and anti-trichomonal agents. It has wide range of activity against anaerobic bacteria as gram negative, gram positive *bacilli*, and *cocci*, certain capnophilic organisms, protozoa and parasites. It is indicated in infections caused by helicobacter pyloric, acne rosacea, anaerobic infections, parasitic infections, pseudomembranous colitis and Crohn's disease.

ICH guidelines states the parameters which causes forced degradation of a drug product includes time, temperature and /or with humidity, acid/base stress testing, photo degradation and pH variation (high and low). UltraViolet – Visible Spectroscopic process was developed to analyse and calculate the amount of drug in the presence of degradation products. According to the USP, the official assay limit of the content should NLT 90% and NMT 100% of labelled amount of metronidazole.

When API and different marketed brands of metronidazole (Flagyl, Metrogyl, and Generic) are exposed to 0.1N HCl, it shows different kind of degradation curves. When these samples were exposed to basic medium of 0.1N NaOH, they show another kind of degradation curves. Whilst under UV light, the degradations were slightly less compared to the above conditions. Under the forced degradation of heat or temperature increment, the degradation was more than UV light and sometimes basic degradation but less than acidic degradation.

UV-Vis spectroscopy is a simple, cost effective, rapid, fruitful and useful method for determination of Metronidazole in their API and Pharmaceutical dosage form (tablets) of different brands.