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Stability studies of berberine using UV spectroscopy

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Abstract:

Nutraceuticals are nutritional supplements that are used to improve health, postpone ageing, fight diseases and support normal bodily functions. Berberine is a nutraceutical drug found in plant species such as berries. It possesses anti-carcinogenic, anti-viral, neuroprotective, cardio-protective, anti-inflammatory and antioxidant properties. The aim of this work is to develop an easy, accurate, precise and economical method for estimating stability of Berberine using UV Spectroscopy.

Our work on stability studies of Berberine got distinct by referring to the ICH guidelines to enlighten the inherent stability characteristics of Berberine. Stability studies involves a series of tests designed to get information on the stability of a drug in order to define its shelf life and usage under specified packaging and storage conditions. The pH, temperature, metal and other compounds may have an impact on the stability of Berberine in various dietary matrices. Forced degradation study is a powerful tool used in pharmaceutical development to develop stability indicating method that leads to quality stability data.

The concentration of the produced degradation products analogous to the intact Berberine was calculated and found to be 96.56%, 66.33% and 75.8 % in case of acid hydrolysis, oxidation, and photolytic degradation respectively. As a result, the developed method for estimation of Berberine in pharmaceutical dosage form and in bulk is simple, definite, reproducible and economical.

Keywords:

Berberine, Stability Studies, Hydrolytic Degradation, Oxidative Degradation, Photolytic Degradation