

A Novel developed method for the estimation of Minoxidil in Pharmaceuticals Using a High-performance Liquid Chromatographic Process

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Abstract

The purpose of this work is to create a precise and rapid RP-HPLC technique to measure Minoxidil in line with the International Conference on Harmonization (ICH) standards. The primary objective of the study is to: This study investigated the development and validation of an efficient, accurate, and quicker RP-HPLC technique for the detection of Minoxidil in compliance with the International Conference on Harmonization (ICH) recommendations. Methods: Specifically, it was Waters that was employed in the HPLC experiment. It was easier to isolate the medication utilising an Ion Pac zorbax 300-SCX Agilent Column with a length of 5 metres and a diameter of 4.6 millimetres, which was used in this study. The mobile phase was composed of Methanol, water, and acetonitrile in a volume ratio of (70:20:10) v/v with perchloric acid at pH 3 at a flow rate of 1 millilitre per minute, while the stationary phase was composed of acetonitrile and perchloric acid at pH 3. According to the data, the minoxidil had a preservation duration of 3.47 0.01 minutes after being applied to the skin. The R² value was 0.9998 in the concentration range of 5–25 g/ml, indicating that the process was linear in the concentration range. It was found that the system's LOD and LOQ had concentrations of (1.980 and 5.980) g/ml, respectively. Precision of the method and system was predicted, and the findings were expressed as a percentage of the standard deviation (RSD), which were found to be well within the bounds of the projected precision. The fact that minoxidil recovery was in the region of 96–100 percent proved the accuracy of the technology used to analyse it. When performed in accordance with the International Conference on Harmonization (ICH) recommendations, the suggested RP-HPLC process was determined to be reliable. The following procedure can be used to do routine diagnostic analysis on a patient.

Key Words:

Chromatographic Method for Minoxidil, Exertion Degeneration, FT-IR for Minoxidil.

The suffering from high blood pressure or hair loss, minoxidil (2, 4-diamino-6-piperidinopyrimidine 3-oxide), also known as Rogaine, may be the answer. In the treatment of hypertension, it is an antihypertensive vasodilator. There are prescription and over-the-

counter versions of this generic drug in tablet and topical liquid or foam form. One of the most common treatments for severe hypertension in patients who have not responded to at least two medications and a diuretic is the use of the medicine minoxidil. The use of