

# GLOBAL E-CONFERENCE ON CHEMISTRY AND CHEMICAL ENGINEERING

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### Dr. Muhammad Ali Syed

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### HPLC Method Validation for the Estimation of Lignocaine HCl, Ketoprofen and Hydrocortisone: Greenness Analysis Using AGREE Score

In the current study, the reversed-phased high-pressure liquid chromatography (RP-HPLC) method was proposed for the estimation of lignocaine hydrochloride (LIG), hydrocortisone (HYD) and Ketoprofen (KET) according to International Conference for Harmonization (ICH) Q2 R1 guidelines, in a gel formulation. The chromatographic evaluation was executed using Shimadzu RP-HPLC, equipped with a C8 column and detected using UV at 254nm wavelength, using acetonitrile and buffer (50:50) as a mobile phase and diluent, at flow rate 1 mL/min and injection volume of 20  $\mu$ L. The retention time for LIG, HYD, and KET were 1.54, 2.57, and 5.78 min, correspondingly. The resultant values of analytical recovery demonstrate accuracy and precision of the method and was found specific in identification of the drugs from dosage form and marketed products. The limit of detection (LOD) for LIG, HYD, and KET were calculated to be 0.563, 0.611, and 0.669 ppm, while the limit of quantification (LOQ) was estimated almost at 1.690, 1.833, and 0.223 ppm, respectively. The AGREE software was utilized to evaluate the greenness score of the proposed method, and it was found greener in score (0.76). This study concluded that the proposed method was simple, accurate, precise, robust, economical, reproducible, and suitable for the estimation of drugs in transdermal gels.

**Keywords:** HPLC Method validation; ICH guidelines; triple drug; lignocaine HCl; hydrocortisone; ketoprofen; greenness determination

#### Biography:

A self-motivated, energetic and team oriented professional with over 13 years of experience in academic research, retail and industry sector. I have the experience of teaching Bachelors and Master Subjects to Foreigner students of more than 8 countries worldwide. I have sound experience of completing research of more than 15 M.Phil. students in time. My previous role was in charge University's Ph.D. central research lab. Currently, I am Member of Bioequivalence Study Centre, The University of Lahore in addition to teaching and research. I am also the member, Board of Studies to augment quality of research at the Department. In 2021, The University of Lahore awarded me Research Productivity Award after I succeeded to attain some international funding for publication. I am interested to learn localized drug delivery as a tool for safety and improving therapeutic outcome using biodegradable polymers and its application in animal model and volunteers. I have sound research experiences in human pharmacokinetic data, HPLC method validation and clinical studies. However, my ongoing projects include localized mucoadhesive drug delivery, polymeric hydrogels for anti-cancer, co-crystallization for solubility enhancement and transdermal delivery for arthritis.