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"Method Development and Validation of Anti Diabetic and Antihypertensive Drugs by using- RP HPLC"

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Abstract

Writing research reveals that there is no thorough explanatory approach for the examination of selected pharmaceuticals Nebivolol and Hydrochlorothaizide, ALSK and Amlodipine, and ATNL and BCTM by synchronous estimation using Bio pertinent media in RP-HPLC using Bio pertinent media. HPLC, HPTLC and spectrophotometer are scientific methods that may be used to analyse mixtures either alone or in combination with other procedures. As a result, it was decided that a new logical strategy innovation was required for the simultaneous estimation of Nebivolol and Hydrochlorothaizide, ALSK and Amlodipine, ATNL and BCTM in pharmaceutical dosage frames and their estimate in bioapplicable medium. RP-HPLC for synchronous examination of Nebivolol and Hydrochlorothaizide, ALSK and Amlodipine, and ATNL and BCTM is being developed to establish another fundamental, rapid and accurate, prolific and repeatable RP-HPLC technology. By adhering to ICH regulations, the method will be accepted.

Keywords

Anti Diabetic, Antihypertensive Drugs, GLC, HPLC, HPTLC, Nebivolol and Hydrochlorothaizide. RP-HPLC.

INTRODUCTION

As of 2015, an estimated 415 million individuals in the globe have diabetes, with 90 percent of them suffering from type 2 diabetes. This represents 8.3% of the adult population, which is split evenly between men and women. Approximately 1.5 to 5.0 million individuals died from diabetes between 2012 and 2015. Diabetes more than doubles a person's mortality risk. 592 million people are estimated to have diabetes by the year 2035. Diabetic complications cost the world economy an estimated $612 billion USD in 2014. In most 3 cases, diabetes mellitus is a long-term condition that has no known treatment. Blood sugar levels should be kept as near to normal as possible but not so low as to cause hypoglycemia.

Due to suffering from diabetes ,patient 99% peoples are suffering from hypertension diseases also.In order to treat their patients, doctors often prescribe a cocktail of two or more medications, depending on the severity and kind of ailment they are treating. likely to take their medication if it is combined into a single pill. Oral and injectable combination therapy for type 2 diabetes mellitus may make it easier for patients to adhere to their treatment regimens, which in turn may help them control their blood glucose levels and lessen their risk of cardiovascular complications. FDC single-pill formulations are becoming accessible for oral combination medicines, and they provide additional convenience and simplicity of administration. category in combined dosage forms are urgently needed. Identification, characterization, and quantification of pharmaceuticals in mixtures such as pharmaceutical formulations and biological fluids are all part of drug analysis. Heart disease and diabetes medications are being released at an alarming pace onto the market. A new medicine or a partial structural alteration of an existing drug might make up these new pharmaceuticals. Multiple therapeutic concerns necessitate the use of two or more medications at the same time. Due to its higher patient acceptance, strength, various actions, reduced side effects, and speed of relief, the mixed dose form has grown in relevance in recent years. One component of a drug's quantitative estimate does not interfere with the estimation of the other. Analyzing such formulations without separation is necessary. Spectrophotometry, GLC, HPTLC, and HPLC are among the regularly used instrumental methods for estimating multi-component formulations. A wide range of chemical characteristics may be measured using these techniques, including specific and nonspecific physical properties. For quantitative analysis of medicines in their combination dose forms, HPLC is the most often employed.

OBJECTIVES

1. To develop and validate RP-HPLC method for estimation of biological fluid.
2. To develop and validate simple spectrophotometric method and high-performance thin layer chromatography (HPTLC) method for estimation of combine dosage form.
3. To investigate degradation pathways of drug substances and drug products.

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4. To differentiate degradation products of drug products from those of non-drug product in a formulation

EXPECTED OUTCOME

For the simultaneous estimation of several chosen cardiovascular and anti-diabetic medications in tablet dose form, the stability indicating RP-HPLC techniques were effectively designed and verified. Suggested approaches were determined to be easy to use and accurate in every way. To demonstrate the methodologies' stability indicating nature, degradation products created under stress circumstances are well isolated from analyte peak areas. For regular analysis at research institutes, quality control departments in businesses, authorized testing labs, bio-pharmaceutics and bioequivalence studies, clinical pharmacokinetic studies, and stability studies, the developed RP-HPLC procedures might be put to use. Stability indicating methods for assaying key medicines in bulk and pharmaceutical dosage forms and for determining impurities in bulk and pharmaceutical dosage forms will be described as part of the work provided in theses. Routine drug testing in laboratory quality control may benefit from the newly established analytical techniques.

REFERENCES

[1] Agrawal, Uttam & Govindasamy, Jeyabalan. (2018). Development and Validation of RP-HPLC method for Simultaneous Estimation of Metformin and Pioglitazone. Indian Journal of Pharmaceutical and Biological Research. 5. 10.30750/ijpbr.5.1.7.

[2] Sevinç KURBANOĞLU (2020) Simultaneous Determination of Hydrochlorothiazide and Irbesartan from Pharmaceutical Dosage Forms with RPHPLC Turk J Pharm Sci 2020;17(5): 523-527 DOI: 10.4274/tjps.galenos.2019.76094

[3] M.V.N. Kumar Talluri, Anitha Kalyankar, Srinivas Ragampeta, Synchronized separation of atorvastatin—an antihyperlipidemic drug with antihypertensive, antidiabetic, antithrombotic drugs by RP-LC for determination in combined formulations, Journal of Pharmaceutical Analysis, Volume 2, Issue 4, 2012, Pages 285- 292, ISSN 2095-1779, https://doi.org/10.1016/j.jpha.2012.02.006.

[4] Gopal Ji Baranwal (2015) STABILITY INDICATING RP-HPLC METHOD FOR SIMULTANEOUS ESTIMATION OF ANTI-DIABETIC AND ANTIHYPERTENSIVE DRUGS Vol. 8 | No. 3 |287 - 297 | July - September | 2015 ISSN: 0974-1496 | e-ISSN: 0976-0083 | CODEN: RJCABP http://www.rasayanjournal.com http://www.rasayanjournal.co.in

[5] Md. Abdullah Al Mahmud (2014) Development and Validation of HPLC Method for Simultaneous Determination of Gliclazide and Enalapril Maleate in Tablet Dosage Form Dhaka Univ. J. Pharm. Sci. 13(1): 51-56, 2014 (June)

[6] S. Srinivasa Rao (2020) Analytical Method Development and Validation of Antidiabetic Drugs (Metformin and Linagliptin) In Tablet Dosage Form by Using RPHPLC METHOD wjpls, 2019, Vol. 5, Issue 8, 113-120 ISSN 2454-2229

[7] Sathiyasundar, Ramalingam & Pandurangan, Perumal & Anupama, Sreelakshmi & Ramani, S & Nandini, Sai & Associate, M & Vidyaniketan, Sree. (2022). Robust Rp-Hplc Method Development and Validation Of Simultaneou