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A Note on Modern Pharmaceutical Analysis

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Editorial

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EDITORIAL NOTE

Pharmaceutical analysis is a discipline of practical chemistry that encompasses a set of procedures for identifying, determining, quantifying, and purifying a substance, as well as separating the components of a solution or mixture and determining the structure of chemical compounds. It might be a single ingredient or a combination of compounds, and it could come in any dosage form. Animals, plants, microorganisms, minerals, and different synthetic materials are the substances that are utilised as pharmaceuticals.

Modern pharmaceutical analysis entails much more than the evaluation of Active Pharmaceutical Ingredients (APIs), inert substances (excipients), and finished Drug Products (DP). Pharmaceutical analysis' main purpose is to ensure drug quality. Quality cannot be tested into a product; nevertheless, well-planned testing using appropriate methods and instrumentation can aid in the development of a DP's quality.' It's critical to have a complete grasp of how pharmacological compounds interact with excipients, especially when residual solvents (including moisture) are present. Understanding potential degradation reactions in the formulated product under various stress conditions that may be experienced during storage and shipment of the final package is also critical. Dissolution tests should also be in excellent accordance with bioavailability. In a brief, the goal of pharmaceutical analysis is to assist in the development and assurance of DP quality. The Food and Drug Administration (FDA) has issued the new Quality by Design (QbD) project, which is defined in the "Pharmaceutical Quality for the Twenty-First Century: A Risk-based approach". This concept's main point is that quality should be built into a product by a deep understanding of

the product and the development and production process, as well as knowledge of the risks involved in making the product and how to best minimise those risks through continuous product improvement [1].

Modern Pharmaceutical Analysis discusses QbD as well as other recent advancements such as the best approaches to monitor Genotoxic Impurities (GTIs), chiral chemical separations, and biopharmaceutical protein identification and analysis [2]. It covered a variety of separation methods used in the pharmaceutical industry for the evaluation of a wide range of samples during the drug development process, including Capillary Electrophoresis (CE) [3], Thin Layer Chromatography (TLC), Gas Chromatography (GC) and High-pressure or High-Performance Liquid Chromatography (HPLC) with a focus on analytical chemistry's involvement. These approaches are still the alternatives to use when verifying the purity of new drug candidates, monitoring modifications or scaling up synthetic procedures, evaluating new formulations, and ensuring the quality of final DPs. For detecting contaminants, hybrid approaches that combine chromatographic procedures with spectroscopic methods such as Mass Spectrometry (MS) or Nuclear Magnetic resonance (NMR) have been proven to be beneficial [4-8]. The goal of modern pharmaceutical analysis is to take into account a variety of essential standards as well as new initiatives aimed at improving DP quality. Using the most up-to-date analytical technologies, we can achieve higher sensitivity and selectivity [9]. Methods for monitoring Gib are included, as well. The consequences for pharmaceutical analysis based on the new "Quality by Design" paradigm are highlighted [10]. As biopharmaceutical proteins become more important, this course will cover their characterization and analysis. The important elements of modern pharmaceutical analysis are providing up-to-date information on documentation in light of regulatory guidelines, technology, and industry trends.

REFERENCES

1. Schneider B B, et al. Chemical effects in the separation process of a differential mobility/mass spectrometer system. Anal Chem, 2010; 82:1867-1880.
2. Xia Y Q, et al. Differential mobility spectrometry combined with multiple ion monitoring for bioanalysis of disulfide-bonded peptides with inefficient collision-induced dissociation fragmentation. Bioanalysis. 2017; 9:183-192.
3. Ha PTT, et al. Recent advances in pharmaceutical applications of chiral capillary electrophoresis. J Pharm Biomed Anal. 2006;41:1-11.
4. Adams E, et al. Optimization and validation of liquid chromatography and headspace-gas chromatography based methods for the quantitative determination of capsaicinoids, salicylic acid, glycol monosalicylate, methyl salicylate, ethyl salicylate, camphor and l-menthol in a topical formulation. J. Pharm. Biomed. Ana. 2012;60:51-58.
5. Valdez JS, et al. Sensitive and selective gas chromatographic methods for the quantitation of camphor, menthol and methyl salicylate from human plasma. J. Chrom. B. 1999;729:163-171.
6. Bahjat KS, et al. Determination of camphor and menthol in pharmaceutical products by gas chromatography. J. Pharm. Sci. 1963;52:1006-1007.
7. Tan HIS, et al. Gas-liquid chromatographic assay of mixtures of camphor, menthol and methyl salicylate in ointments. J. Chrom. 1982;238:241-246.

8. Kim E, et al. Simultaneous determination of 3-O-acetyloleanolic acid and oleanolic acid in rat plasma using liquid chromatography coupled to tandem mass spectrometry. J Pharm Biomed Anal. 2016; 118:96-100.
9. Loos G, et al. Quantitative mass spectrometry methods for pharmaceutical analysis. Phil. Trans. R. Soc. A. 2016;374.
10. Yu LX, et al. Understanding pharmaceutical quality by design. AAPS J. 2014;16:771-783.