Upcoming New Dimension in Drug Analysis Methods

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ABSTRACT
In recent decades, the scientific procedures relating to medicate location and portrayal have advanced an incredible arrangement bringing about the turn of events, improvement and approval of huge swath of strategies and methods. Proceeded with endeavours are being made for polluting influence profiling while at the same time acquiring better exactness and accuracy for detachment and evaluation of the analytes. Pharmaceutica Analytica Acta reports these advances intermittently. The current issue of the diary centres around conveyance of nasal splash bead circulation, in silico concentrates on Spebrutinib and pharmaceutical examination dependent on stream investigation strategies.

INTRODUCTION
When contrasted with other skin use of helpful operators, the nasal shower is viewed as viable for fast medication conveyance and adequacy because of rich nasal vascularization and nearness of olfactory locale to the focal sensory system. Be that as it may, the bead size circulation assumes a significant job in the wellbeing of the organization and its counteraction from entering the tracheo-bronchi framework [1]. Examination of nasal shower bead size appropriation and decided the impact of various incitation edge on the perceptions. The investigation uncovered that speed doesn’t decide the bead size; however, change in activation point did. The investigation accentuated that the technique was exact, vigorous and can recognize various items. The created technique has gigantic significance for the assessment of business nasal shower quality.

In silico examines are directed to assess the viability of various medication analogues and their docking properties. Spebrutinib is a potential enemy of malignant specialist as it viably hinders tyrosine kinase, a chemical significant for disease cell endurance [2]. In silico examines utilizing various analogues of this enemy of the dangerous operator. The plan and docking reads were likewise helpful for combination and compound portrayal of the analogues. The investigation additionally stressed on directing organic movement against malignant cell and harmfulness appraisal in typical cells.

The methods of partition and evaluation of the atomic elements assume a significant job in pharmaceutical investigations. In the wake of thinking about the mechanical headways, preferences and the constraint of hyphenated approaches, Economou [3] has underlined that fluid partition-based hyphenation of stream investigation fills in as corresponding to standard fluid chromatography and has a massive degree in pharmaceutical examination with ability to decide a huge number of...
pharmaceuticals including the application for low to medium weight detachments and advancement of slope elution convention just as online example pretreatment. [4]

Massive importance in creating, adjusting, enhancing and approval of better explanatory systems and approaches having pertinence to nasal shower based treatment; structuring and creating exact medication analogues for malignant growth treatment just as detachment of new pharmaceutical analytes which present significant systematic difficulties [5].

MATERIALS AND METHODS

Poor curcumin absorption from stomach related lot might be a direct result of its low water dis-solvability, decay at fair or fundamental pH, photosensitivity and a coordinately overseen joining between preparing synthetics and transporters, all exhibit pair with the net eventual outcome of low curcumin maintenance. In vitro examinations with Caco-2 cells, MDCKII cells and LLC-PK1 cells investigates various roads concerning vesicles detached from Multidrug Resistance Associated Proteins 1 and 2 (MRP-1 and MRP-2) transfected Sf8 cells, and CYP3A4 ponders recognized P-glycoprotein (Pgp), MRP-1, MRP-2, Cytochrome P450 isoenzyme 3A4 (CYP3A4), sulfotransferase 1A1 and 1A3 (SULT1A1 and 1A3), UDP glucuronyltransferases and unclear oxydoreductases as the essential intestinal transporters and synthetic compounds for hepatic presystemic absorption of curcumin [6-8]

RESULTS AND DISCUSSIONS

The sample preparation step in LC-MS can be simplified when compared to GC-MS. Still, this step of the analysis cannot be eliminated, since a large number of interferents present in the sample extract can contaminate the system and, mainly, due to the effect matrix that may lead to inaccurate or false-negative results in qualitative analyzes. In some (rare) situations, a derivatization step can be used [9-11]. Commercially available instruments allow sample preparation procedures to be done online with the LC-MS system, providing a high throughput of samples. [12]

A critical disadvantage of LC-MS is still the considerable cost of instrument and supplies (high-purity organic solvents, gases, columns, etc.). Although some authors consider the matrix effect as a disadvantage of the LC-MS, this phenomenon is well known nowadays, and several alternatives to evaluate or even circumvent it are already published in the literature. [13]

At the beginning of the second decade of the 21st century, MS-based assays, usually realized in the LC-MS/MS format with quadrupole ion selection technology-based MS detectors, became standard technology in TDM Consequently, [14] it is not surprising that it also made a substantial impact on ISD TDM Consequently, [14] it is not surprising that it also made a substantial impact on ISD TDM. Very high selectivity, meaning that in small molecule analysis it is in principle possible by straightforward technological/analytical means to avoid a quantitative contribution of metabolites or isobaric congeners present in the matrix to the analysis result. However, like any other technology, LC-MS/MS has its technological limitations. If not properly respected, crossing the (often somewhat ill-defined) red line of a limitation may lead to serious problems in the technology application, including the generation of severe and unforeseeable irregular analytical errors [17, 18].

CONCLUSION

The primary source of such errors generally associated with MS is the possible presence of matrix effects (e.g., ion suppression or ion induction); this is mainly a risk when using the widely applied electrospray ionization (ESI) technology. In this context, influences by hydrophilic (e.g., salts) and lipophilic (e.g., phospholipids) matrix components are an issue and need to be targeted by appropriate countermeasures. Here, achieving a high extraction efficacy and selectivity and striving for high resolution in the chromatographic domain (e.g., by the application of online SPE) as well as the use of stable isotope internal standards are strategies well-described and highly appreciated by the scientific community

Conflict of Interest

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REFERENCES

[1] Ravi Prasada RM, Mogadati P, Arutla S, Senthi M. Development and Validation of Robust Analytical Method to Determine Droplets Size Distribution of Nasal Spray Using Laser Diffraction Technique. Pharmaceutica Analytica Acta. 2019;10(3):611–611. Available from: 10.35248/2153-2435.19.10.611.

[2] Al-Obaidi ZMJ, Abdul-Rasheed OF, Mahdi MF, Raauf A. In Silico Design, Synthesis and Characterization of New Spebrutinib Analogues. Pharmaceutica Analytica Acta. 2019;10(3):612–612. Available from: 10.35248/2153-2435.19.10.612.

[3] Economou A. Advances in the Hyphenation of Flow Analysis Techniques with Liquid Separations for Pharmaceutical Analysis. Pharmaceutica Analytica Acta. 2019;10(3):613–613. Available from: 10.35248/2153-2435.19.10.613.

[4] Anand P, Kunnumakkara AB, Newman RA, Aggarwal BB. Bioavailability of Curcumin: Problems and Promises. Molecular Pharmaceuticals. 2007;4(6):807–818. Available from: 10.1021/mp700113r.

[5] Tonnesen HH, Masson M, Loftsson T. Studies of curcumin and curcuminoids. XXVII. Cyclodextrin complexation: solubility, chemical and photochemical stability. Int J Pharm. 2002;244:127–135.

[6] Aggarwal BB, Kumar A, Bharti AC. Anticancer potential of curcumin: preclinical and clinical studies. Anticancer Res. 2003;23:363–398.

[7] Sharma OP. Antioxidant activity of curcumin and related compounds. Biochem Pharmacol. 1976;25:1811–1812.

[8] Ruby AJ, Kuttan G, Babu KD, Rajasekharan KN, Kuttan R. Anti-tumour and antioxidant activity of natural curcuminoids. Cancer Letters. 1995;94(1):79–83. Available from: 10.1016/0304-3835(95)03827-j.

[9] Sugiyama Y, Kawakishi S, Osawa T. Involvement of the β-diketone moiety in the antioxidative Mechanism of Tetrahydrocurcumin. Biochemical Pharmacology. 1996;52(4):519–525. Available from: 10.1016/0006-2952(96)00302-4.

[10] SRIMAL RC, DHAWAN BN. Pharmacology of diferuloyl methane (curcumin), a non-steroidal anti-inflammatory agent*. Journal of Pharmacy and Pharmacology. 1973;25(6):447–452. Available from: 10.1111/j.2042-7158.1973.tb09131.x.

[11] Jordan WC, Drew CR. Curcumin—a natural herb with anti-HIV activity. J Natl Med Assoc. 1996:88:333–333.

[12] Mahady GB, Pendland SL, Yun G, Lu ZZ. Turmeric (Curcuma longa) and curcumin inhibit the growth of Helicobacter pylori, a group 1 carcinogen. Anticancer Res. 2002;22:4179–4181.

[13] Kim MK, Choi GJ, Lee HS. Fungicidal property of Curcuma longa L. rhizome-derived curcumin against phytopathogenic fungi in a greenhouse. J Agric Food Chem. 2003;51:1578–1581.

[14] Reddy RC, Vatsala PG, Keshamouni VG, Padmanaban G, Rangarajan PN. Curcumin for malaria therapy. Biochemical and Biophysical Research Communications. 2005;326(2):472–474. Available from: 10.1016/j.bbrc.2004.11.051.

[15] Kuttan R, Bhanumathy P, Nirmala K, George MC. Potential anticancer activity of turmeric (Curcuma longa). Cancer Letters. 1985;29(2):197–202. Available from: 10.1016/0304-3835(85)90159-4.

[16] Pitcheses J, Pensabene E, Rastelli S, Di Blasi A. Turmeric (Curcuma longa) protects against hyperoxia-induced retinopathy in rats. Free Radical Biol Med. 2000;29(2):231–234. Available from: 10.1016/S0891-5849(00)00052-7.

[17] Venkatesan N, Punithavathi D, Arumugam V. Curcumin prevents adriamycin nephrotoxicity in rats. British Journal of Pharmacology. 2000;129(2):231–234. Available from: 10.1038/sj.bjp.0703067.

[18] Srivastava R, Dikshit M, Srimal RC, Dhawan BN. Anti-thrombotic effect of curcumin. Thrombosis Research. 1985;40(3):413–417. Available from: 10.1016/0049-3848(85)90276-2.

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