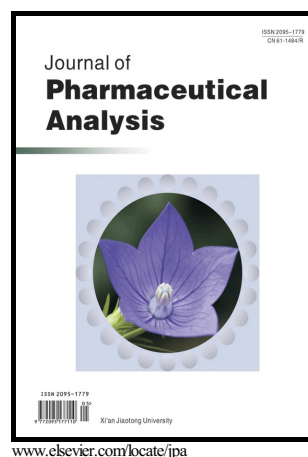


Author's Accepted Manuscript

Comparison of ESI- and APCI-LC-MS/MS methods: A case study of levonorgestrel in human plasma

Rulin Wang, Lin Zhang, Zunjian Zhang, Yuan Tian



PII: S2095-1779(16)30026-0
DOI: <http://dx.doi.org/10.1016/j.jpha.2016.03.006>
Reference: JPHA304

To appear in: *Journal of Pharmaceutical Analysis*

Received date: 19 January 2016
Revised date: 26 March 2016
Accepted date: 28 March 2016

Cite this article as: Rulin Wang, Lin Zhang, Zunjian Zhang and Yuan Tian, Comparison of ESI- and APCI-LC-MS/MS methods: A case study of levonorgestrel in human plasma, *Journal of Pharmaceutical Analysis* <http://dx.doi.org/10.1016/j.jpha.2016.03.006>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and a review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Comparison of ESI- and APCI-LC-MS/MS methods: A case study of levonorgestrel in human plasma

Rulin Wang^a, Lin Zhang^a, Zunjian Zhang^{a,b*}, Yuan Tian^{a**}

^aKey Laboratory of Drug Quality Control and Pharmacovigilance, Ministry of Education, China Pharmaceutical University, Nanjing 210009, China;

^bState Key Laboratory of Natural Medicine, China Pharmaceutical University, Nanjing, 210009, China

zunjianzhangcpu@hotmail.com

tiancpu@sina.com

*Corresponding author.

**Corresponding author at Key Laboratory of Drug Quality Control & Pharmacovigilance, Ministry of Education, China Pharmaceutical University, Nanjing, 210009, China.

Abstract

Electrospray ionization (ESI) and atmospheric pressure chemical ionization (APCI) techniques for liquid chromatography-tandem mass spectrometry (LC-MS/MS) determination of levonorgestrel were evaluated. In consideration of difference in ionization mechanism, the two ionization sources were compared in terms of LC conditions, MS parameters and performance of method. The sensitivity for detection of levonorgestrel with ESI is 0.25 ng/mL which is higher than 1 ng/mL with APCI. Matrix effects were evaluated for levonorgestrel and internal standard in human plasma, and the results showed that APCI source appeared to be slightly less liable to matrix effect than ESI source. With an overall consideration, ESI was chosen as better ionization technique for rapid and sensitive quantification of levonorgestrel. The optimized LC-ESI-MS/MS method was validated for a linear range of 0.25-50 ng/mL with a correlation coefficient ≥ 0.99 . The intra- and inter-batch precision and accuracy were within 11.72% and 6.58%, respectively. The application of this method was demonstrated by a bioequivalence study following a single oral administration of 1.5mg levonorgestrel tablets in 21 Chinese healthy female volunteers.

Keywords: Levonorgestrel; Ionization modes; LC-MS/MS; Pharmacokinetics; Human plasma

1. Introduction

Download English Version:

<https://daneshyari.com/en/article/8521337>

Download Persian Version:

<https://daneshyari.com/article/8521337>

[Daneshyari.com](https://daneshyari.com)