

Accepted Manuscript

Title: Simultaneous analysis of opioid analgesics and their metabolites in municipal wastewaters and river water by liquid chromatography-tandem mass spectrometry

Authors: Ivona Krizman-Matasic, Petra Kostanjevecki, Marijan Ahel, Senka Terzic



PII: S0021-9673(17)31801-0
DOI: <https://doi.org/10.1016/j.chroma.2017.12.025>
Reference: CHROMA 359081

To appear in: *Journal of Chromatography A*

Received date: 14-8-2017
Revised date: 17-11-2017
Accepted date: 9-12-2017

Please cite this article as: Krizman-Matasic I, Kostanjevecki P, Ahel M, Terzic S, Simultaneous analysis of opioid analgesics and their metabolites in municipal wastewaters and river water by liquid chromatography-tandem mass spectrometry, *Journal of Chromatography A* (2010), <https://doi.org/10.1016/j.chroma.2017.12.025>

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 review of the resulting proof before it is published in its final 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.

Simultaneous analysis of opioid analgesics and their metabolites in municipal wastewaters and river water by liquid chromatography-tandem mass spectrometry

Ivona Krizman-Matasic, Petra Kostanjevecki, Marijan Ahel, Senka Terzic*

Division for Marine and Environmental Research, Rudjer Boskovic Institute, Bijenicka c. 54, 10000 Zagreb, Croatia

*Corresponding author:

Dr. Senka Terzic

Contact: terzic@irb.hr

Tel. +385-1-4560-940

Fax: +385-1-4680-242

Highlights

- LC-MS/MS method for the determination of 27 opioid analgesics was developed
- Keeping SPE cartridges at -20 °C was the best way to ensure stability of opioids
- Opioid analgesics are common constituents of municipal wastewater and river water
- Metabolites of opioids contributed significantly to the overall mass balance
- Conjugated opioids may represent a significant percentage of the total concentration

Abstract

Although published literature provides a clear demonstration of widespread occurrence of opioid analgesics (OAs) in the aquatic environment, analytical methods suitable for a systematic study of this pharmaceutical class, which would include a broad spectrum of opioid analgesics and their metabolites, are still missing. In this work, a comprehensive multiresidue method for quantitative analysis of 27 opioid analgesics and their metabolites, including 2 morphine glucuronide conjugates, was developed and validated for three matrices: raw wastewater (RW), secondary effluent (SE) and river water. The method comprised different classes of opioid analgesics, including natural opiates (morphine and codeine), their semi-synthetic derivatives (hydrocodone, hydromorphone,

Download English Version:

<https://daneshyari.com/en/article/7609099>

Download Persian Version:

<https://daneshyari.com/article/7609099>

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