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Exploring in vivo metabolism and excretion of QO-58L using ultra-high-performance liquid chromatography coupled with tandem mass spectrometry

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Abstract:

QO-58 lysine (QO-58L) as a new potassium channel opener, reported to have a potential activity to cure neuropathic pain. The aim of this research is to develop and validate a high-performance liquid chromatography with tandem spectrometry (LC-MS/MS) method for the quantification of QO-58L in rat urine, feces and bile. In addition, analyze and identify the metabolites in urine and bile. The assay for this compound in samples detected with multiple reaction monitoring mode (MRM), and take nimodipine as internal standards (IS). To better understand the biotransformation of QO-58L, metabolites in urine and bile were identified by using ultra high performance liquid chromatography tandem quadrupole/time of flight mass spectrometry (UHPLC-Q-TOF-MS) in the positive and negative ion mode. Urine, feces and bile were quantified by three new methods. The results showed that: QO-58L was mainly eliminated through fecal route (92.94%), a small amount of via biliary excretion (2.05%), and rarely through urinary excretion (0.024%). As a result, there are 11 metabolites were identified, including 8 phase I metabolites resulting from elimination, hydroxylation and dihydroxylation, and 3 phase II metabolites

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