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An LC-MS/MS method for the determination of Cucurbitacin E in rat plasma for pharmacokinetic studies

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Cucurbitacins are highly oxygenated tetracyclic triterpenes isolated mainly from Cucurbitaceae plant family. Cucurbitacin E is the most studied Cucurbitacin due to its anti-proliferative activity against various types of cancer. However, there are no experimental studies regarding to its pharmacokinetics in plasma samples. The objective of the present study was to develop and validate a LC-MS/MS method for the quantitative analysis of Cucurbitacin E in rat plasma with application in pharmacokinetic studies. Wistar male rats received a single oral or a single intraperitonial 1mg/kg dose of Cucurbitacin E in saline. Serial blood samples were collected from 0-24 h after drug administration. Aliquots of 100 µL plasma were extracted with acetonitrile:methyl tert-butylether (1:5) and added with clobazam as internal standard. The samples were injected on a Select B column using a mixture of methanol:acetonitrile:water (30:40:30) as a mobile phase. Analyses were performed by LC-MS/MS consisted of an ESI interface operating at positive ionization mode and multiple reaction monitoring. Method validation included matrix effect, linearity, LOQ, stability, within-run and between-run precision and accuracy. The method showed linearity in the range 0.04-10 ng/mL with a LOQ of 40 pg/mL. The method applied in the evaluation of Cucurbitacin E pharmacokinetics administered to rats orally or i.p. showed that Cucurbitacin E was not detected in concentrations ≥40 pg/mL (LOQ) in all collected plasma samples. In conclusion, the pharmacokinetics of Cucurbitacin E in plasma should be evaluated using its metabolites, such as Cucurbitacin I identified in rat urine in a previous study of the research group.

Biography

Giovana Maria Lanchoti Fiori has completed her Master degree at the age of 22 years from University of Ribeirão Preto, Brazil. She is doing her PhD in Toxicology at the School of Pharmaceutical Sciences of Ribeirão Preto, University of São Paulo, Brazil. She has been working with experimental pharmacokinetics evaluating new compounds obtained from herbal medicines.

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