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白杨素在模式生物斑马鱼中的代谢研究

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摘要 目的 采用模式生物斑马鱼研究白杨素的代谢，探索斑马鱼用于研究药物Ⅱ相代谢的可行性及合理性。方法 将斑马鱼暴露于白杨素溶液中，定时取鱼体及药液，采用高效液相色谱-电喷雾质谱联用检测，根据正、负离子模式准分子离子峰获得化合物相对分子质量信息，通过与文献数据或对照品对照，推测代谢产物。结果 在斑马鱼体内或体外药液检测到白杨素原形及其2个单羟基葡萄糖醛酸结合物和1个单羟基硫酸结合物。结论 斑马鱼对白杨素的代谢与白杨素已有体内、体外的Ⅱ相代谢机制高度一致，提示斑马鱼用于药物Ⅱ相代谢具合理性，更具有化合物用量少、成本低、方法简单、高效的优势，为建立一种模式的、生物的在体药物代谢新模型提供重要参考价值。

关键词： 斑马鱼 白杨素 代谢 高效液相色谱-电喷雾质谱

Abstract: OBJECTIVE To study the metabolism of chrysin by model organism zebrafish for the first time, thus to investigate the reasonability of applying zebrafish in drug phase II metabolism. METHODS Zebrafish was exposed to chrysin solution for 24 h, and the samples of solution and zebrafish body were analyzed by high performance liquid chromatography-electrospray mass spectrometry (HPLC-ESI-MS) method. The quasi-molecular ions of compounds in both negative and positive mode were observed for molecule mass information, and the potential structures of the compounds were identified by studying on the mass spectra and comparing with reference data or standards. RESULTS In addition to the parent compound, three phase II metabolites were identified, including two glucuronidation products and one sulfation product.CONCLUSION The metabolism of chrysin in zebrafish is highly consistent with that identified by current *in vivo* and *in vitro* methods, which indicates that it is reasonable using zebrafish to sutdy phase II metabolism. Zebrafish model has the advantages of using far less amount of compound, lower cost, higher efficiency and simple procedure, which may become a novel organism model for quick predication of metabolism of compounds and enrich the available models greatly.

Keywords: zebrafish, chrysin, metabolism, high performance liquid chromatography-electrospray mass spectrometry

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