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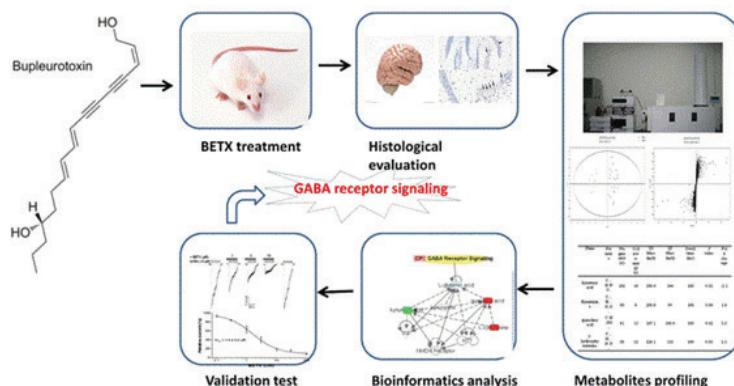
Metabolomics study on the toxicity of polyacetylenes

Xinru Liu

Second Military Medical University, China

Polyacetylenes are widely present in food and herbs, while these compounds have specific neurotoxicity, and even cause death. The toxicity study of these compounds is still inadequate. Target site of toxicity is not clear, and the mechanisms of toxicity are poorly understood. In order to clarify the neurotoxicity of these compounds, we selected bupleurotoxin isolated from *B. longiradiatum* as a neurotoxicity-inducing compound. 17 toxicity biomarkers were identified using global metabolomics, 4 of them were then verified by targeted metabolomics. Bioinformatics analysis using the Ingenuity Pathway Analysis (IPA) software found a strong correlation between the GABA receptor and these metabolites. A validation test using a rat hippocampal neuron cell line was designed to confirm that finding and the results confirmed that BETX inhibited GABA-induced currents (I_{GABA}) in a competitive manner. In summary, our study illustrated the molecular mechanism of the toxicity of polyacetylenes.

Keywords: polyacetylenes, bupleurotoxin, neurotoxicity, global metabolomics, targeted metabolomics, GABA receptor



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Biography

Xinru Liu is the lecturer of the Pharmacy School at Second Military Medical University. Lecturer X. Liu holds a doctorate in analytical bioscience (2013), and works in Professor Weidong Zhang's group for more than 7 years. The major research field is disease diagnosis, and compounds extracted from nature products' efficiency evaluation in vivo by using metabolomic technology.

liuxinru@hotmail.co.uk