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Application of a strategy based on metabolomics guided promoting blood circulation bioactivity compounds screening of vinegar

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Statement of the Problem: Rice vinegar (RV) and white vinegar (WV) as daily flavoring, have also used as accessory in traditional Chinese medicine processing. As we know, the promoting blood circulation efficiency could be enhanced when herbs processed by vinegar. Number of reports focused on health benefits derived by consumption of vinegar. However, few concerned the blood circulation bioactivity.

Methodology & Theoretical Orientation: In this paper, a metabolomics guided strategy was proposed to elaborate on the chemical constituents' variation of two kinds of vinegar. GC-MS coupled with multivariate statistical analysis were conducted to analyze the chemical components in RV and WV and to discriminate them. The anti-platelet activities *in vitro* were investigated by whole blood aggregometry platelet test. And the anticoagulant activities were monitored by the whole blood viscosity, plasma viscosity, packed cell volume, prothrombin time, and four coagulation tests (PT, TT, APTT, FIB) *in vivo*.

Findings: Constituents of RV and WV were globally characterized and 33 potential biomarkers were identified. The contents of four potential alkaloid biomarkers increased with aging time prolonged in RV. RV and its alkaloids metabolites exhibited some anti-platelet effects *in vitro* and anticoagulant activities *in vivo*. WV failed to exhibit promoting effects.

Conclusion & Significance: Alkaloid metabolites were demonstrated to be the principal compounds contributing to discrimination and it increased with aging time prolonged in RV. RV exhibited the blood circulation bioactivity. The alkaloids of RV contributed to the blood circulation bioactivity.



Figure 1: Description of the strategy

Biography

Zhenli Liu has her expertise in "The quality control of Chinese herbal medicine using analytical methods and in separating active ingredients from herbal medicine using chemical separation methods". She has published more than 100 journal articles in both Chinese and English.

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