

Abstract

Ezhu is an famous and commonly used traditional Chinese medicine. It has been reported that Ezhu possess anti-tumor activity. There are three species of *Curcuma* including *Curcuma phaeocaulis* Val., *Curcuma kwangsiensis* S. G. Lee et C. F. Liang and *Curcuma wenyujin* Y. H Chen et C. Ling. Used as Ezhu as recorded in “The Pharmacopoeia of People’s Republic of China” 2005 edition.

However, it was reported that there were great different differences of the chemical components among the three species of Ezhu. In the present thesis, the research is focus on the differences of anti-tumor effects among the three species of Ezhu and their active components.

Firstly, the anti-tumor effect of three species of *Curcuma* were tested on the human Hepatocarcinoma cell line HepG₂, human premyelocytic leukemia cell line HL-60 and human breast adenocarcinoma cell line MCF-7 were used in the study. The results showed that all the three species of Ezhu had anti-tumor effect, among of them, the effect of *Curcuma phaeocaulis* is the best, *Curcuma kwangsiensis* is the better, and *Curcuma wenyujin* showed the weakest of the three. However, the volatile oil from *Curcuma wenyujin* showed stronger anti-tumor effect than the volatile oil from *Curcuma kwangsiensis*.

Then the IC₅₀ of different species of Ezhu were coupled to the data of GC-MS and HPLC analyses results. The principal components method of factor analysis and Pearson of bivariate correlations analysis were performed by using SPSS for Windows 15.0. We hope the statistics analysis can provide research method to explore the active components of Ezhu, and provide a theoretical basis for the further development of Ezhu.

As the result, the second factor of GC-MS analysis contains the peak of No. 40,51,54,56,58,72,76,85,91,96,98,100,107,108, and the third factor of HPLC analysis contains the peak of No.5,12,13. The peaks of No. 5 and No.54 are curcumenol, and the peak of No.13 is furanodienone. The second factor of GC-MS analysis and the third factor of HPLC analysis have great variance contribution rate, so they may have prominent correlation with the anti-tumor effect. They may contribute to anti-tumor effect as a group of active component, and further study is needed in the future.

Key words: Ezhu, Anti-tumor, Chromatography analysis, SPSS for Windows 15.0, Principal components analysis, Pearson of bivariate correlations anlysis, Active components