Effect of the extract from leaves of *Liquidambar formosana* Hance on S180 cells

Y.T. Zhong, X.L. Wang, Q.J. Xie and Y.N. Zhang

Gannan Medical University, Ganzhou, Jiangxi Province, China

Corresponding author: YT. Zhong
E-mail: zyt6869@126.com

Genet. Mol. Res. 15 (3): gmr.15038795
Received May 16, 2016
Accepted June 3, 2016
Published July 25, 2016
DOI http://dx.doi.org/10.4238/gmr.15038795

ABSTRACT. We examined the effects of the extract from leaves of *Liquidambar formosana* Hance on S180 cells and screened for antitumor active sites in the plant. Solvent extraction was conducted to prepare extracts from the leaves of *L. formosana* Hance and conduct preliminary separation, an MTT assay to determine the effect of leaf extract on the proliferation of S180 cells, and inverted microscopy to observe the effect of chloroform extract on the morphology of S180 cells. Double-staining (Annexin V/propidium iodide) with flow cytometry was conducted to determine the effect of the chloroform extract on S180 cell apoptosis. At some concentrations, the different extracts from the leaves of *L. formosana* Hance dose-dependently inhibited the proliferation of S180 cells. Among all extracts, the chloroform extract showed the strongest inhibitory effect on S180 cell proliferation. The IC_{50} values for the chloroform extract, ethyl acetate extract, *n*-butanol extract, and water layer were 0.238, 0.471, 0.844, and 0.411 mg/mL, respectively. We observed cell shrinkage, volume reduction, and varying sizes by inverted microscopy. Additionally, with increasing drug concentration, the number of cells decreased and debris

increased. The cells showed typical apoptotic morphological changes. The chloroform extract induced the apoptosis of S180 cells in a dose-dependent manner. Different extracts from the leaves of *L. formosana* Hance inhibited the proliferation of S180 cells, and the chloroform extract was the main antitumor component. This extract from the leaves of *L. formosana* Hance inhibited the proliferation of S180 cells in part by inducing apoptosis.

Key words: S180 cells; Leaves of *Liquidambar formosana* Hance; Active sites; Apoptosis