Evaluation of Hepatoprotective Effect of Arctigenin Isolated from *Arctium lappa L.*

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Introduction: Arctigenin is a lignan isolated from *Arctium lappa L.* (Asteraceae) widely used in traditional chinese medicine. Studies have shown that both *Arctium lappa L.* crude extract and Arctigenin showed pharmacological activities such as anti-inflammatory, hepatoprotective, antidiabetic and antimicrobial. However, the hepatoprotective effect of Arctigenin has not been yet elucidated. The objective of this study was to isolate and identify Arctigenin from crude extract of *Arctium lappa L.* and evaluate the hepatoprotective activity of Arctigenin in human hepatocellular carcinoma-derived (HepGG-2). Material and Methods: *Arctium lappa L.* was collected, dried, pulverized, extracted by soxhlet using chloroform (30°C,3h), concentrated, and the crude extract was analyzed by thin layer chromatography. The crude extract was fractionated (fractions 1-7) in silica gel vacuum column. The Arctin, Arctigenin precursor molecule, was isolated from fractions 6 and 7 and submitted to acid hydrolysis (H₂SO₄ 5%;methanol(1:1),6h) to obtain Arctigenin. Another vacuum column was performed to purify the hydrolyzed fraction, obtaining 14 fractions. Arctigenin was isolated into 11-14 fractions and identified by ¹H NMR. Cell viability of purified Arctigenin in HepG-2 and NIH/3T3 fibroblasts cell lines was analyzed by MTT assay and trypan blue methods. The Arctigenin anti-adhesion activity on HepG-2 cells was performed by collagen-MTT method. Results and Discussion: Arctigenin structure was confirmed by ¹H NMR by spectral data of literature. In cell viability studies, the Arctigenin showed dose-dependent activity for HepG-2 cells. In the concentration 269.0 μM was observed smaller number of viable cells (70.6%) and the IC₅₀ was observed at 90.8 μM. In the trypan blue test, a concentration of 94.1 μM, was observed number of viable cells 75.4%. No activity on 3T3 cells was observed, demonstrating the specific action on these tumor cells. Conclusions: Preliminary results suggest that Arctigenin could be promising in the treatment of liver diseases without action in normal fibroblast cells.

Word Keys: Arctigenin, Hepatoprotective, HepG-2, MTT