Anticancer Effects of Ethanolic Extracts of Thai Noni Juice Products Combined with 5-Fluorouracil on Cholangiocarcinoma Cells In Vitro and In Vivo

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ABSTRACT

Clinical application of 5-fluorouracil (5-FU) in cholangiocarcinoma (CCA) treatment is often associated with resistance. Therefore, the combination therapy of 5-FU with another substance urgently needs to develop. In this study, the anticancer effects of Thai noni juice (TNJ) ethanolic extracts alone or in combination with 5-FU were evaluated. The results showed TNJ ethanolic extracts reduced CCA cell viability, whereas, in combining with 5-FU, the synergistic effects were observed. Cell cycle analysis, apoptosis assay and western blotting of key molecules revealed the apoptosis mechanism was underlying. Besides, the combination treatment of TNJ ethanolic extracts and 5-FU also suppressed the tumor growth of CCA cells in a nude mouse xenograft model with no adverse effects. Hence, the TNJ ethanolic extracts could apply to combination chemotherapy in the CCA treatment.

Keywords: Morinda citrifolia, Synergistic effect, Nude mouse xenograft

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