

Preparation and effect of Nanoliposomal form of lyophilized *Ecballium elaterium* seed extract on Gastric cancer cell line (AGS)

Abstract

Purpose: *Ecballium elaterium* (L.) A. Rich (EE), which is also known as squirting cucumber, is the only species of the *Ecballium* genus. *Ecballium elaterium* is a wild medicinal plant which is found in Moghan (Ardabil province, Iran). The present study was conducted to prepare nanoliposomal form of EE extract and to compare its cytotoxicity with EE aqueous extract on human Gastric Adenocarcinoma (AGS) cell line.

Method: Nanoliposomes were prepared using ultrasonic method and encapsulated with EE extract. Encapsulation efficacy was determined using spectrophotometric method. AGS cancer cell line was treated with crude extract and nanoliposomal form of EE extract and incubated for 24 h at 37°C. Cytotoxicity of the crude extract and E-extract encapsulated with the nanoliposome on AGS cells was examined by MTT, neutral red and Frame assays and IC₅₀ was determined.

Results: The IC₅₀ values for the crude extract using MTT, neutral red and Frame assays were 0.98, 1.08 and 0.94 µg/mL, respectively, while IC₅₀ values for nanoliposomal form of the extract were 0.39, 0.41 and 0.38 µg/mL, respectively.

Conclusion: The results showed that the crude extract and nanoliposomal form extract of *E. elaterium* have cytotoxic effect on AGS cell line and AGS cells were significantly more susceptible to *E. elaterium* encapsulated with nanoliposome compared with the crude extract.

Keywords:

Ecballium elaterium, Nanoliposomes, Gastric Cancer cells.