Anti-proliferative and apoptotic induction effect of Elateriospermum extract on human lung cancer cell line A549 †

ABSTRACT

Natural products derived from plants are used to treat cancer due to fewer side effects compared to standard treatments available for cancer. The second highest cancer that causes death worldwide is lung cancer. Therefore, this study aimed to determine the cytotoxic activity of hot and cold aqueous extract of E. tapos seed and shell on human cancer cell line A549 as well as the apoptosis mechanism. The apoptosis mechanisms were evaluated by cell viability (3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide tetrazolium reduction assay; MTT assay), Hoechst 33358 staining and detection of reactive oxygen species (ROS) activity. The apoptosis inducing activity was analyzed in set of morphological and biochemical features. Hot aqueous shell extract (SHH) showed an anti-proliferative effect at the IC50 of 49.8 ± 0.06 µg/mL correlated with apoptosis induction by increasing the ROS activity by significant ($p < 0.05$) increase of 3.25 folds compared to control. Results suggest that SHH poses an anti-proliferative effect on account of apoptosis through ROS mediated mitochondria mutilation.

Keyword: Elateriospermum tapos; Lung cancer; Apoptosis