

Annona muricata Leaves Induced Mitochondrial-Mediated Apoptosis in A549 Cells

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Abstract : The present study was designed to evaluate the molecular mechanisms of *Annona muricata* leaves ethyl acetate extract (AMEAE) against lung cancer A549 cells. Cell viability analysis revealed the selective cytotoxic effect of AMEAE towards A549 cells. Treatment of A549 cells with AMEAE significantly elevated the reactive oxygen species formation, followed by attenuation of mitochondrial membrane potential via upregulation of Bax and downregulation of Bcl-2, accompanied by cytochrome c release to the cytosol. The released cytochrome c triggered the activation of caspase-9 followed by caspase-3. In addition, AMEAE-induced apoptosis was accompanied by cell cycle arrest at G1 phase. Our data showed for the first time that AMEAE inhibited the proliferation of A549 cells, leading to cell cycle arrest and programmed cell death through activation of the mitochondrial-mediated signaling pathway.

Keywords : *Annona muricata*, lung cancer, apoptosis, mitochondria

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