

## Cytotoxic effects of $\alpha$ -Eleostearic acid-rich fat extracted from seeds of bitter melon (*Momordica charantia*) on Vero 76 cells

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Some seed fat sources contain conjugated trienoic fatty acids in high proportions (30- 80%). Previous studies have revealed that these fatty acids possess potent anticarcinogenic properties. The bitter melon (*Momordica charantia*) seed fat contains a conjugated trienoic fatty acid named  $\alpha$  - Eleostearic acid ( $\alpha$  – ESA; 18:3;9c,11t,13t). The reported proportion of  $\alpha$ -ESA in the fatty acid profile ranges from 50% - 60% and it is consistent with our study giving a result of 50.56%. Thus, the current *in vitro* study was conducted to evaluate the cytotoxicity of  $\alpha$ -ESA-rich fat using a continuous cell line named Vero 76. It has been previously suggested that Vero cells can be used for preliminary studies in cancer research *in vitro*.

For the *in vitro* evaluation, fatty acid methyl esters (FAMES) of bitter melon seed fat (BMO) was prepared and was incorporated into the cell line with RPMI 1640 medium (10 $\mu$ l FAME + 90 $\mu$ l RPMI medium). As a control, FAMES of coconut fat (*Cocos nucifera*; CO) was incorporated (10 $\mu$ l FAME + 90 $\mu$ l RPMI medium) into growing cells. Furthermore, in the positive control, Absolute Ethanol (100 % Ethanol) was added (100 $\mu$ l) and in the negative control 100 $\mu$ l of RPMI medium was added. MTT assay was conducted after 24 hours incubation. Finally Absorbance (A) was measured at 570 nm.

The results revealed that Vero cells treated with FAMES of BMO have exhibited a significantly less cell viability (A = 0.2138) as compared with cells treated with FAMES of CO (A = 0.8475). The viability of cells treated with FAMES of CO was comparable with the negative control (A = 1.027). Interestingly, the viability of cells treated with FAMES of BMO was comparable with the positive control (A = 0.2443) indicating a potent cytotoxicity on these cells.

BMO exhibited a significant cytotoxic action compared with CO. As Vero cells have been recognized a suitable cell culture for preliminary cytotoxicity studies, these results pave the way for further studies on this cytotoxic conjugated fatty acid using cancer cell lines *in vitro*.

**Key words:** Bitter melon,  $\alpha$  - Eleostearic acid, Vero 76, Cytotoxicity

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