

# Induction of Apoptosis in Rat Liver Cells via Caspase Activation by Chloroform Fraction of Methanol Extract of *Drymaria Cordata*

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## Abstract

Modulators of mitochondrial Permeability Transition (mPT) pore opening are targets of drug development for conditions arising from dysregulated apoptosis. *Drymaria cordata* (DC) is a medicinal plant used locally in the treatment of tumors, but there is paucity of scientific information to justify these folkloric claims. In this study, the effects of chloroform fraction of the methanol extract of *Drymaria cordata* (CFDC), was investigated on mitochondrial-mediated apoptosis via induction of pore opening. The methanol extract (MEDC) was partitioned successively to obtain n-hexane (NFDC), chloroform (CFDC), ethylacetate (EFDC) and methanol (MFDC) fractions. The animals were equally divided into four groups. Groups I, II, III and IV were treated orally with distilled water, CFDC(50mg/kgbdwt), CFDC(100mg/kgbdwt) and CFDC(200mg/kgbdwt), respectively. Rat liver mitochondria were isolated by differential centrifugation. The effects of CFDC on mPT pore, mitochondrial ATPase activity, mitochondrial membrane lipid peroxidation, cytochrome C release, extent of DNA fragmentation, Caspases 9 and 3 activation and expressions of anti-apoptotic Bcl-2 protein were investigated. Data were analysed using ANOVA at  $\alpha$  0.05. Oral administration of CFDC at 50, 100 and 200mg/kgbdwt caused the induction of mPT pore opening by 25, 38 and 50%, respectively, and hepatic DNA fragmentation by 20%, 37% and 60%, respectively.

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## Biography

A/O.Olowofolahan has completed his PhD research and has presented his final PhD seminar. He is currently awaiting the defence coming up soon at the University of Ibadan, Nigeria. He has published 6 journals in reputable journals out of

which 3 is from his PhD work. He has published 6 journals in reputable journals out of which 3 is from his PhD work.