

## Assessment of apoptosis inducing potential and antitumor activity of the active fraction of *Bulbophyllum sterile* leaves

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Orchids are widely known for their beauty and also for medicinal properties. Various studies reported that orchids, belonging to the genus *Bulbophyllum* have potential antitumor activity. *Bulbophyllum sterile* (Lam.) Suresh, (Orchidaceae), indigenous to southern India might possess antitumor activity. The present study was carried out to answer this question. Alcoholic extract of the leaves along with petroleum ether, dichloromethane and ethyl acetate fractions were all subjected to preliminary *in vitro* screening at a dose range of 50-500 µg/ml using MTT and SRB assay in HCT-116, MDA-MB-231 and A549 cell lines to determine the active fractions. The active fraction at its IC<sub>50</sub> value was further evaluated under various anticancer screening protocols using acridine orange/ethidium bromide (AO/EB) staining, comet assay and cell cycle analysis. Further, *in vivo* studies were carried out in Ehrlich ascites carcinoma model. Dichloromethane fraction (DCM) was found to be most active in HCT-116 cell lines with IC<sub>50</sub> value of 153.4 & 142.3 µg/ml using MTT and SRB assay respectively. Change in nuclear morphology was evident from AO/EB staining confirming apoptosis. Furthermore, increase in tail length and olive tail moment was evident from comet assay. Cell cycle analysis revealed G<sub>2</sub>/M phase blocking activity (29.9%) compared to (17.5%) of control. The fractions increased the mean life span in EAC inoculated mice and increased the hepatic antioxidant levels. We therefore conclude from *in vitro* and *in vivo* studies that leaves of *Bulbophyllum sterile* have potential antitumor activity.

### Biography

Sreedhara Ranganath Pai, PhD is a Professor and head of pharmacology department at Manipal College of Pharmaceutical Sciences, Manipal University, Manipal, India. He has research experience of 17 years and has published 35 papers in reputed journals. His areas of research interest are cancer biology and metabolic disorder. He guided two Ph. D research works and over 28 post students. He has peer-reviewed papers for international journals like, *Pharmaceutical Biology*, *Indian Journal of Pharmacology*, and *Cytotechnology* etc.

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