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A preliminary study on anti-cancer potential of *Osbeckia octandra* L. (Heen Bovitiya) leaf extract on YD-38 human oral squamous cell carcinoma *in-vitro*

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Background: Cancer has become a huge burden all over the world making it a leading cause of death. Therefore, many research activities are being conducted on various therapeutic drugs for curing. *Osbeckia octandra* is a plant endemic to Sri Lanka which is used in traditional medical practitioners due to its hepato-protective, antioxidant and antimicrobial effects.

Objectives: The study was designed to examine the anti-cancer potential of *O. octandra* leaf extract using an *in vitro* cell culture model with human oral squamous cell carcinoma (OSCC) cells, YD 38.

Methods: *O. octandra* leaf powder (100 g) was extracted using hexane, ethyl acetate and methanol sequentially by sonication at room temperature. The solvents were evaporated using a rotary evaporator and dissolved in Dimethyl Sulfoxide (DMSO). YD-38 cells were cultured under standard cell culture conditions in six-well plates and treated with leaf extracts with 0, 0.3, 3.0 and 30.0 µg/mL. Doxorubicin with the concentration of 5 µM was used as the positive control. After 24 hours of incubation the cells were stained with Trypan blue and viability percentages were calculated with the cell count obtained from haemocytometer.

Results: Cell viability percentages decreased with increasing concentrations of *O. octandra* methanol extract showing dose dependency with 30 μ g/mL as the lowest (p<0.05) cell viability percentage. A significantly lower (p<0.05) cell viability percentage was observed with respect to exposure to 3 μ g/mL concentration of the ethyl acetate extract while treatment with hexane extract showed no significant reduction in the viability of YD-38 cells.

Conclusion: The results of this preliminary study clearly suggest that the methanol and ethyl acetate extracts of *O. octandra* show cytotoxic effects on OSCC cells. In-depth studies are warranted to identify the compounds responsible for the bioactivity and the underlying mechanisms of action.

Keywords: Osbeckia octandra, Human oral squamous cell carcinoma (OSCC) cells, Anticancer

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