

Understanding of Anti-Cancer Properties of *Neolamarckia cadamba* Leaves Extract on Breast Cancer Cell

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ABSTRACT

Objectives/Research Problem: The increasing of breast cancer cases from year to year is really worrying. It is ranked as the most common cancer occurs and the leading cause of cancer death among women worldwide. Although there are many advance treatments available, the long term effect of the treatments on the patients cannot be ensured. Effective, safe and non-toxic treatment of natural product is one of the best approaches in treating breast cancer and act as chemopreventive agent. *Neolamarckia cadamba*, an Ayurvedic medicinal plant, has been used by Indian folklore in treating illnesses. The variety of phytochemical compounds found and pharmacological activities in this Rubiaceae family plant indicates that it has a strong potential in treating cancer. Therefore, there is a need to evaluate anti-cancer properties of this plant on breast cancer cell. The present study is carried out to obtain a better understanding on chemopreventive effect of *N. cadamba*'s leaves on human breast cancer cell lines (MCF-7).

Materials and Method: *N. cadamba* leaves were extracted with 80% ethanol by sonication method. Different concentrations of *N. cadamba* leaves extract (NCE) were prepared by serial dilution (1:2). Then, the extracts were administered on breast cancer cell line (MCF-7). The 50% inhibitory concentration (IC₅₀) assay was conducted by Trypan blue exclusion method to determine the cell viability. The IC₅₀ value will be used to measure antiproliferative effect. The induction of apoptosis and cell cycle arrest will be evaluated using flow cytometry. The mechanism pathway which regard to apoptosis and cell cycle will be determined using Quantitative Polymerase Chain Reaction (qPCR).

Results and Discussion: The result found that the IC₅₀ value of this extract was 0.125 mg/ml. It showed that the NCE have ability to inhibit growth of breast cancer cell. Meanwhile, the results for antiproliferative assay, flow cytometric analysis and qPCR analysis are yet to be determined as the works are still in progress.

Conclusion: The present study demonstrates that the *N. cadamba* leaves extract has a potential against breast cancer cell line, MCF-7.

KEYWORDS: *Neolamarckia. cadamba*, Leaves Extract, IC₅₀, Breast Cancer

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