ETHANOL-EXTRACTED *VERNONIA AMYGDALINA* INHIBITS SPINDLE FORMATION OF MICROTUBULES IN HELA CELLS

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**Abstract:** Microtubules are among the most successful targets for anticancer therapy. This is evident because they play a key role in the process of mitosis and cell division. Many drugs have been developed that target microtubules for cancer treatment. Recent studies have shown that paclitaxel and vinca alkaloids are two of the most effective microtubule-targeted drugs. These drugs are considered to be very effective because they have the ability to suppress microtubule dynamics. Other drugs undergoing clinical trials may also have the ability to change microtubule formation. The objective of this study was to analyze the effect of ethanol-extracted *Vernonia amygdalina* on the formation of spindle microtubules in HeLa cells. Cells were plated at a density of 5×10^3 cells/ml in complete Opti-Mem medium supplemented with 10% FBS and 1% antibiotic. They were treated with increasing concentrations of 50, 100, and 300 µg/ml of ethanol extracted *Vernonia Amygdalina* for 24 hours. Microtubule staining was performed using mouse anti-alpha tubulin (DM1 alpha) and Donkey anti-mouse-Texas Red as primary and secondary antibodies. DNA was counterstained with Hoechst (2µg/ml). Images were visualized and taken using an epifluorescence microscope. Ethanol extracted VA inhibits spindle formation in HeLa cells. Microtubules also undergo greater instability as the concentration increases. The greatest effect on spindle formation was examined with 300 µg/ml of the extract. Therefore, we can conclude that ethanol extracted VA inhibits cell proliferation at high concentrations by targeting spindle microtubules.

**Keywords:** *Vernonia amygdalina* extracts, Cervical carcinoma, microtubule destabilization

**Acknowledgements:** This research was supported in part by Research Centers in Minority Institutions (RCMI)/NIH grant # G122RR13459-07S1; National Center for Minority Health Disparities (NCMHD)/NIH grant # P20MD000534-01.