**VERNONIA AMYGDALINA LEAF EXTRACTS-INDUCED DNA DAMAGE AND APOPTOSIS OF HUMAN BREAST ADENOCARCINOMA (MCF-7) CANCER CELLS**

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**Abstract:** Traditional medical practitioners, herbalists, and local healers in West Africa recommend aqueous _vernonia amygdalina_ (VA) to their patients for the treatment of many diseases including: fever, hiccups, kidney problems, stomach discomfort, and breast cancer. Although published studies indicate that VA has medicinal properties effective against many diseases other than breast cancer, the molecular mechanisms under which this compound exerts its therapeutic effect in cancer cells remain largely unknown. Hence, the aim of the present study was to assess the therapeutic efficacy of VA leaf extracts in the management of breast cancer _in vitro_ by the means of comet and annexin V assays, respectively. In this experiment, human breast adenocarcinoma (MCF-7) cells were treated with different doses of VA leaf extracts for 48 h. Data generated from the comet assay indicated a slight dose-dependent increase in DNA damage of MCF-7 cells associated with VA treatment. We observed a slight increase in comet tail-length, tail arm and tail moment, as well as in percentages of DNA cleavage at all doses tested, showing an evidence that VA-induced minimal genotoxic damage in MCF-7 cells. The result of the annexin V assay using the flow cytometry showed that VA-treatment induces the expression of annexin positive cells. These findings provide evidence that VA extracts may be a good therapeutic candidate for the prevention against breast cancer and its mechanisms of action are, at least in part, through minimal DNA damage and less than 31% of apoptosis in MCF cells.

**Keywords:** _Vernonia amygdalina_; MCF-7 cells; DNA damage, annexin V

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