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BIOCHEMICAL, PHYSIOLOGICAL, AND CLINICAL EVIDENCE FOR EFFICACY OF *V. Amygdalina* EXTRACTS AS TREATMENT AND/OR PROPHYLAXIS FOR BREAST/PROSTATE CANCERS

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Abstract: Cancer is a leading cause of death in the United States. More than 1.6 million new cases of cancer of all sites, comprising of 51% males and 49% females, were reported in 2015 coupled with total cancer-related deaths of 589,430, 53% and 47% males and females respectively. Breast cancer alone accounts for the incidence and mortality rates of approximately 14% and 7.0 respectively. Conventional or allophatic chemotherapies provide therapeutic and survivability values but such values/benefits are compromised by the harsh/unwanted side effects of such chemotherapies. In contrast, botanical agents, which commonly exist as complex compounds, provide potential alternatives. One of such promising botanicals is *Vernonia amygdalina*. Using [^{3}H]-thymidine incorporation (DNA Synthesis) and confirmation with increase in cell number (mitosis) methodologies, we report here that *Vernonia amygdalina* inhibits DNA synthesis in a concentration-dependent manner. Fractionation of the parent compounds (ethanol condensates) into chloroform-extracted (A2), butanol-extracted (A3), and ethycacetate-extracted fractions (B3) further stimulated DNA synthesis by 76-fold, 15-fold, 75.4-fold at 1mg/ml concentration compared to serum-stimulated growth. Further fractionation of the A2 by Column Chromatography (silica gel) MCOH.CHCL$_3$ system to A2B improved ($p<0.05$) activity. (A2 1.7-fold vs 3.2-fold for A2B at 0.1 mg/ml). Riodiological analysis also show that standardized VA (edoTIDE^{tm} plus) reduced prostatic enlargement. In addition, an enzymatic digestion of the A2B fraction with amylase further improved activity. Thus suggesting, at least, the presence of some amylase-sensitive active components in A2B.

Key words: cancer, *Vernonia amygdalina* extracts, paclitaxel.

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