VERNONIA AMYGDALINA EXTRACTS AUGMENT CARCINOMA GROWTH-INHIBITORY PROPERTIES OF PACLITAXEL AND VINCRIStINE

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Abstract: Breast cancer is the leading cause of death in women between ages 40-55 and the second overall cause of death among women. The exact cause of breast cancer is still unknown but several known risk factors contribute to the onset of breast cancer. Various treatment options are available to women diagnosed with this disease including surgery, chemotherapy, radiation therapy and hormonal therapy. Paclitaxel (TAX) and Vincristine (VIN) are two chemotherapeutic agents used in the treatment of breast cancer; however the side effects that accompany these drugs are numerous and undesirable. Vernonia amygdalina (VA), a plant native to Africa is consumed in the diet and used to treat several conditions. Our prior studies show VA to have antiproliferative effects in cancer cells. The objectives of these studies were to assess the ability of VA to synergize with known anti-cancer drugs (TAX and VIN) to inhibit MCF-7 breast cancerous cell growth. MCF-7 cells were propagated in RPMI-1640 medium, supplemented with 10% fetal bovine serum and 1% penicillin-streptomycin. Cell growth or inhibition was determined by DNA synthesis assays and confirmed by cell counts using a hemacytometer. TAX (100 nM) and VA (100 μg/ml) inhibited DNA synthesis, on average of three independent experiments by 50 and 364% respectively. Vincristine (100 nM) did not affect DNA synthesis. Interestingly, TAX and VIN (10 nM) alone had no effects on DNA synthesis, but inhibited DNA synthesis significantly (P<0.5) in the presence of VA in a VA concentration-dependent fashion. Upon further studies, these findings may translate to patient regimens with reduced dosage amounts of currently used breast cancer drugs. Thus, fewer side effects, improve quality of life (QOL) and better survival rates.

Key Words: MCF-7 cells, Paclitaxel, Vincristine, Vernonia amygdalina, Breast cancer.

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