American Journal of Immunology 6 (4): 50-53, 2010
ISSN 1553-619X

Anti-Carcinoma, Anti-Obesity, Antidiabetic and Immune Defence Effects of *Vernonia amygdalina* Leaf Extract and Leaf Powder, in Two Human Cancer Patients

Utoh-Nedosa Uchechukwu Anastasia
Department of Pharmacology and Toxicology, Faculty of Pharmaceutical Sciences,
Nnamdi Azikiwe University, Awka, Anambra State, Nigeria

Abstract: Problem statement: Two cancer patients were treated with *Vernonia amygdalina* (*V. amygdalina*) leaf extract and leaf powder. The leaf extract of *V amygdalina* was administered orally for 9 months to the first patient in response to his reception of a medical diagnosis of having traces of prostate cancer. **Approach:** This patient was also over weight by 40 kg. The *V. amygdalina* treatment eliminated the traces of prostate cancer tissue and caused the patient to lose 25 Kg excess body fat. **Results:** During the treatment, the excess fat elimination by *V. amygdalina* leaf extract usually occurred within 2 sec, 2 min of *V. amygdalina* extract intake. Cancer diagnostic screening tests conducted on the patient at the end of the 9 months *V. amygdalina* treatment showed no traces of prostate cancer tissues in the patient for 5 years. The prostate cancerous tissues re-emerged and re-stablished themselves after 4 years of the *V. amygdalina* treatment. The patient took hospital-based orthodox treatment for one year and found that the cancer was slowly progressing. The *V. amygdalina* leaf extract treatment was repeated by the patient for 6 months to arrest and eliminate the re-established cancer tissues. This sec *V. amygdalina* treatment slowed the speed of progression of the cancer but was ineffective in eliminating the re-established cancer tissues. The *V. amygdalina* treatment was terminated by the patient to continue with hospital-based treatment. The prostate cancer metastasized quickly after the termination of the *V. amygdalina* treatment despite the orthodox medicine treatment and killed the patient a year and one month after the termination of the *V. amygdalina* treatment. In the second case, oral *Vernonia amygdalina* leaf extract and topically applied *Vernonia amygdalina* leaf powder were administered to a skin cancer patient who was also diabetic. The treatment was given for three months. During the treatment *V. amygdalina* leaf-powder applied topically to the cancer tumor remained unceasingly firmly bound to the tumor surface but produced only a 10-15% reduction in the size of the cancer tumor in three months. The *V. amygdalina* treatment brought the patient's blood glucose level down from 395/100 dL to a steady 33/100 dL, in one month. The blood glucose lowering effects of *V. amygdalina* leaf extract were usually exerted in 2 sec, 2 min of extract intake by the patient. **Conclusion/Recommendations:** The action of *V. amygdalina* leaf extract and powder in these cancer treatments show that they inhibit, scavenge and destroy cancer treatments during their early formative stages. The results also show that *V. amygdalina* leaf extract can slow down but cannot effectively eliminate well-established cancer tissues or completely stop them from metastasizing.

Key words: Anti-carcinoma, anti-obesity, vernonia amygdalina, *V. amygdalina*, leaf extract, leaf powder, skin cancer, cancer tumor, prostate cancer, cancer treatments, carbohydrate foods

INTRODUCTION

Vernonia amygdalina leaf which is locally called bitter leaf is a soup vegetable which has been in use in Nigeria for centuries. The Igbos of south eastern Nigeria cherish and long for their bitter leaf soup just as the American misses his chocolate cake or as the Greek misses his baklava and as the Soviet Georgian misses his fresh home-made yogurt. It is the bitterness in the biter leaf that puts it in a separate class among all green leafy vegetables used in food .This bitterness and the leaf's rich content of sesquiterpene lactones; alkaloids; glycosides; essential proteins;dietary mineral elements et cetra, confer to bitter leaf the antiplasmodial (Varshochi *et al*., 2010), anti-thrombic (Bandyopadhyay *et al*., 2010), wound healing (Indexmedicus Afro Who, 2009) and anti-cancer (Oyugi *et al*., 2009; Pradupsri *et al*., 2009; Prakash *et al*., 2011; Akah and Okafor, 2006; Constance Ikoku, 2009), properties demonstrated in various studies.

Corresponding Author: Utoh-Nedosa, Department of Pharmacology and toxicology, Faculty of Pharmaceutical Sciences, Nnamdi Azikiwe University, Awka, Anambra State, Nigeria

The wound healing effect of herbal ointments formulated with the leaves of *Vernonia amygdalina* were found to be more than those of the standard antibiotic (Indexmedicus Afro Who, 2009). Bitter leaf extract was recommended as a very good treatment for prostate cancer as it increases the flow of urine, reduces the painful urination experienced by the patient and regulates the spread of the cancer cells (Lu and Benbrook, 2006) The therapeutic effects of *V. amygdalina* leaf extract and leaf powder in the treatment of two cases of malignant human cancer are reported in this study.

MATERIALS AND METHODS

Dried whole-some mature red stalked *V. amygdalina* leaf were extracted with twice their own volume of boiling water and sieved out as the *V. amygdalina* extract or ground into fine powder as the *V. amygdalina* leaf powder.

The Treatment: The *V. amygdalina* leaf extract was administered to the first patient as soon as he was medically diagnosed of having traces of prostate cancer. This patient was 40Kg over weight. The patient took oral 2×33 ml of the *V. amygdalina* extract or 10g of the powder 4 times daily for 9 months .This treatment was taken for six months, 5years and three months later to eliminate the re-established cancer tissues.

The same *V. amygdalina* extract was administered orally in the same dosage of 2×33 mL four times daily for 3 months to a sec patient who had an already advanced re-established skin cancer tumor. This patient's facial skin cancer had formerly been surgically removed and had re-established itself.

V. amygdalina leaf powder was initially applied topically to the already cleaned surface of the skin cancer tumor. This application of the *V. amygdalina* powder was done three-hourly every day for three months. The orally administered V amygdalina treatment was taken concurrently with the topical application of the *V. amygdalina* powder the cancer tumor.

The variables controlled for the two cancer patients during their treatment included the following:

Items permitted in the diet of the patient: I. One quarter of formally consumed quantity of carbohydrates. ii. An Equivalent of three quarters of formally consumed quantity of carbohydrates' worth of non acidic green leafy vegetables. iii. Normal daily requirements of proteins, fruits, vitamins and mineral salts. iv. A minute quantity of fat.

Disallowed items: Each of the two cancer patients was disallowed taking the following during the treatment:

- Alcohol and tobacco
- Oilly foods, food dressings, fruits, vegetables, soups, stews, gravys
- Food seasoning
- Acidic foods, fruits, vegetables, food spices (including garlic, ginger)
- Coffee, tea, cocoa and acidic beverages and fruit juices
- Soft drinks (including malt and carbonated soft drinks)
- Large quantities of carbohydrate foods especially complex carbohydrate foods

RESULTS

The *V. amygdalina* treatment "Ate up" or scavenged the traces of prostate cancer tissues of the first patient. Cancer diagnostic screening tests taken by the patient after the V, amygdalina leaf extract treatment showed no cancer tissue traces for four years during which was still on the dietary restrictions imposed during the *V. amygdalina* treatment. The *V. amygdalina* treatment also reduced the patient's obesity by 25 kg. The excess fat elimination effects of *V. amygdalina* occurred each time within 2 sec, 2 min of drug intake.

When the malignant tissues of the prostate cancer re-established themselves after four years of the fifst *V. amygdalina* leaf extract treatment, treatment of the re-established prostate cancer for six months with the same *V. amygdalina* treatment regimen that was used in the first treatment only succeeded in slowing down the progression of the course of the cancer but did not eliminate the re-established prostate cancerous tissues as screening tests showed that the cancer tissues were spreading. Despite intensive high quality hospital based treatment the re-established cancer metastasized quickly and killed the patient one year and one month after the termination of the sec *V. amygdalina* leaf extract treatment.

The topically applied *V. amygdalina* powder firmly stuck to the face of the tumor to dry or shrink it up (Fig. 1). There was evidence that the topical *V. amygdalina* powder engaged the cancer tissue to mop it up as it always stuck to the face of the cancer tumor resisting any attempt to clean it off the face of the tumor (Fig. 1).

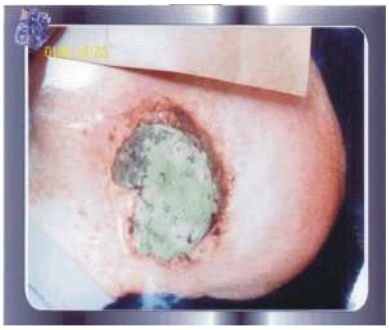

Fig. 1: (left) *Vernonia amygdalina* powder stuck to the face of the cancer tumor

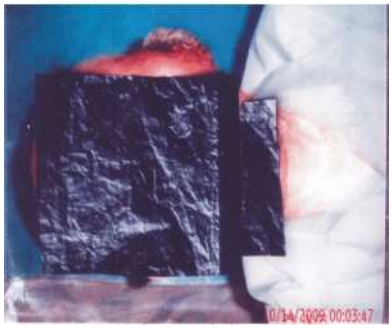

Fig. 2: (right) *Vernonia amygdalina* treatment produced less than 20 and drying up of established cancer tumor

The size of the tumor was however only reduced by about 10-15% at the end of three month's *V. amygdalina* treatment (Fig. 2). The patient terminated the *V. amygdalina* leaf extract treatment at three months and went back to hospital to excise the tumor.

DISCUSSION

Cancer tissue/tumor inhibition and elimination effects of *V. amygdalina* have been obtained in various studies (Guruswamy and Benbrook, 2006; Sureban *et al*., 2006; Constance Ikoku, 2009), although no case of use of *V. amygdalina* to treat human cancer has been reported. A Nigerian born professor of biology, a specialist in *Vernonia amygdalina*; at Jackson State University, Mississippi; found that some compounds from *V. amygdalina* extracts, were able to inhibit the growth of breast cancer and were also effective in other tumor cells (Oyugi *et al*., 2009). He also found that multiple solvent extracts of *V. amygdalina* leaf of various polarity indexes, yielded three fractions each of which significantly ($p<0.05$), inhibited breast cancer cell growth at a concentration of 0.1 mg^{-1} mL. In his studies six fractions of the *Vernonia amygdalina* leaf extract of different solvents (chloroform, hexane, butanol and ethyl acetate),inhibited DNA synthesis by 76, 98, 94, 98, 98 and 96% respectively, at a concentration of 1 mg^{-1} mL (Oyugi *et al*., 2009). These fractions had similar retention times of 2.213, 2.17 and 2.151 min respectively and showed 3 distinct UV -detected peaks around 410,431 and 664nm (Oyugi *et al*., 2009).

The retention time of approximately 2 min obtained in the breast cancer inhibition study (Oyugi *et al*., 2009) coincides with the 2 sec, 2 min pharmacological action time observed for *Vernonia amygdalina* leaf extract in its blood sugar-lowering and excess fat elimination effects obtained in my two patients.

CONCLUSION

The simultaneous cancer cell cytotoxicity/inhibition and excess body fat/excess blood sugar removal by *V. amygdalina* leaf extract /powder in the same patient suggests cancer cell penetration and pharmacological action time of 2 sec, 2 min. The actions of *Vernonia amygdalina* leaf extract/powder in these cancer treatments suggest that the extract or powder recognized, and destroyed or scavenged malignant prostate cancer cells which were at the early "trace" stage and inhibited the skin cancer tumor which was at an established stage. This innate ability of *V. amygdalina* leaf extract to recognize the cancer patient's normal body cells as "self" cells and to recognize the malignant cancerous cells as "non self" cells that must be destroyed/inhibited from proliferating is a demonstration of the immune defence properties of *Vernonia amygdalina* leaf extract. The cancer tissue cytotoxicity/inhibition effects of *Vernonia amygdalina* leaf extract and powder obtained in these two therapeutic cases are concluded to be a demonstration of the free radical immune defence/antibody properties (Barrett and Blanc, 2009; Kadhim *et al*., 2008) of *Vernonia amygdalina* leaf extract and powder.

The results of these two cancer therapeutic applications of *V. amygdalina* leaf extract and powder together enable the reporter to conclude that *V. amygdalina* leaf extract/powder is cytotoxic to or can "eat up" "trace" cancerous tissue but can only inhibit the growth and spread of established cancer tumor. The experience with the prostate cancer case suggests that when cancer malignancy becomes well established, "eating up" of the cancerous cells by *V. amygdalina* leaf extract/powder does not occur at a fast enough pace to meet or beat the speed of proliferation of the

malignant cancer cells. The compactness of established cancer tumor makes its penetration hard for the short acting *V. amygdalina* leaf extract/powder.

REFERENCES

Akah, PA. and C.L. Okafor, 2006. Blood sugar-lowering effects of *vernonia amygdalina* del in an experimental rabbit model. Phytotherapy Res., 6: 171-173.

Bandyopadhyay, B., S. Das, M. Sengupta, C. Saha and K.C. Das, 2010. Decreased intensity of japanese encephalitis virus infection in chick chorioallantoic membrane under influence of ultradiluted belladonna extract. Am. J. Infect. Dis., 6: 24-28. DOI: 10.3844/ajidsp.2010.24.28

Barrett, J. and K.L. Blanc, 2009. Cancer chemotherapy and immune regulation. Am. J. Immunol., 5: 8-16. DOI: 10.3844/ajisp.2009.8.16

Constance Ikoku, 2009. Nigerian recieves patent for cancer, Diabetes. http://www.nairaland.com/nigeria/topic-282329.0.html

Guruswamy, S. and D.M. Benbrook, 2006. Retinoids chemosensitize ovarian cancer cell lines to cisplatin independent of nuclear receptors and p53. Am. J. Pharmacol. Toxicol., 1: 87-93. DOI: 10.3844/ajptsp.2006.87.93

Indexmedicus Afro Who, 2009. The Wound Healing effects of Herbal Ointments Formulated With Leaves of *Vernonia amygdalina* Var. indexmedicus.afro.who.int/iah/fulltex/jophas3.7esimone.pdf-lignende http://www 7/4/2009

Kadhim, H.S., A.S. Abdulamir, R.R. Hafidh, F. Abubaker and K.A. Abbas, 2008. Investigations in the molecular events of transitional cell carcinoma of the bladder. Am. J. Biochem. Biotechnol., 4: 408-415. DOI: 10.3844/ajbbsp.2008.408.415

Lu, S. and D.M. Benbrook, 2006. Role of AP-1 antagonism in growth inhibition of cervical cancer cell lines by retinoids. Am. J. Pharmacol. Toxicol., 1: 40-47. DOI: 10.3844/ajptsp.2006.40.47

Oyugi, D.A., X. Luo, K.S. Lee, B. Hill and E.B. Izevbigie, 2009. Activity markers of the anti-breast carcinomer cell growth fractions of *vernonia amygdalina* extracts. Exp. Biol. Med., 234: 410-417. PMID: 19176872

Pradupsri, P., C. Loetchutinat, N. Nuntasaen, P. Meepowpan and W. Tuntiwechapikul *et al*., 2009. Anticancer activities of styrylpyrone from the leaves and twigs of *Goniothalamus maewongensis via* cell cycle arrest. Am. J. Applied Sci., 6: 2018-2023. DOI: 10.3844/ajassp.2009.2018.2023

Prakash, N.S., R. Sundaram and S.K. Mitra, 2011. *In Vitro* and *In Vivo* anticancer activity of bacoside a from whole plant of *Bacopa Monnieiri* (Linn). Am. J. Pharmacol. Toxicol., 6: 11-19. DOI: 10.3844/ajptsp.2011.11.19

Sureban, S.M., D. Subramania, P. Rajendran, R.P. Ramanujam and B.K. Dieckgraefe, 2006. Therapeutic effects of phyllanthus species: Induction of TNF-α-mediated apoptosis in HepG2 hepatocellular carcinoma cells. Am. J. Pharmacol. Toxicol., 1: 65-71. DOI: 10.3844/ajptsp.2006.65.71

Varshochi, M., M. Haghdoost and O. Mas, 2010. Idiopathic granulomatous mastitis: A case report**.** Am. J. Infect. Dis., 6: 61-65. http://thescipub.com/pdf/10.3844/ajidsp.2010.61.65