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A survey of plants used by traditional medicine practitioners in the treatment of HIV/AIDS in Plateau state, Nigeria

Noel N. Wannang*, Elijah N. Sokomba

Department of Pharmacology, Faculty of Pharmaceutical Sciences, University of Jos, (NIGERIA)

E-mail : wannangn@unijos.edu.ng

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ABSTRACT

The plants used by herbal practitioners for the treatment of HIV/AIDS in Plateau state, Nigeria were studied for documentation. The ethnopharmacological survey involved visitation to the local government areas in the state and a direct interaction with the traditional medicine practitioners. The plants identified were Allium sativum, Andrographis paniculata, Anogeissus leiocarpus, Balanites aegyptiaca, Carica papaya, Cucumis metuliferus, Dialium guineense, Garcinia kola, Jatropha curcas, Momordica charantia, Moringa oleifera, Nauclea latifola, Parkia biglobosa, Polygala arenaria and Vitex doniana. Generally, an average of three (3) plants were used at a time for a period of 3-4 months. In some instances a cocktail of plants were used for longer duration. Despite the wide claims by the herbalists, there is no any definite proof to whether these herbs actually have the pharmacological properties in curing HIV/AIDS.

INTRODUCTION

The search for the treatment of HIV/AIDS is unending, and this has involved both orthodox and alternative medicine practitioners. Quite recently, the traditional practitioners insist that they have a cure for it, though there is no documented proof for this claim. International organizations like the World Health Organization[1], has established programmes for traditional medicine, aimed at exploring the merits of traditional medicine in light of modern science in order to maximize useful and effective practices by encouraging research and giving financial aids in the area of traditional medicine[2]. Africa and indeed, Plateau state (Nigeria) is blessed with abundant plant materials that could produce lead structures in pharmaceutical industries if properly investigated. Studies suggest that almost 70% of people living with HIV and about half the general population use some form of complementary therapy. Most of the herbs and supplements used in HIV are immune boasters. Echinacea purpurea is one of the most well known herbal immune boosters. It contains constituents that stimulate the immune system to control both bacterial and viral infections. The plant contains polysaccharides, that are capable of inhibiting the viruses, thus preventing entry into cells. Echinacea also has a general stimulating effect on the body's immune system and is currently being investigated for possible increase in production of T-lympocytes as well as phagocytosis stimulation[3].

Astragalus root contains polysaccharides that increase phagocyte activity of macrophages in the gastro intestinal tract. It is thought to improve the actions of interferon, preventing viral replication and increasing resistance to viral infections. Lactobacillus bulgaricus, L. casei. Bifidobacterium and Streptococcus thermophilus (probiotics) that are found in yogurt have been found to

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boost the immune system by increasing phagocytosis and macrophage activity. They increase antibody production and other immune cells.

Momordica balsamina fruit has been reported to contain alpha and beta momorchorin: two proteins that inhibit HIV[4]. Similarly, another HIV inhibitory protein, MAP30, has been shown to inhibit reverse transcriptase and P24 expression, with very little effect on uninfected cells[4]. A recent report on MAP30 has shown that it may inhibit HIV through destroying viral DNA, stops cell to cell infection and inhibits viral replication[4].

Plant sterols, which are fats that are found in the seeds of pumpkins, yams, rice and some herbs, have been shown to enhance the effectiveness of T-cells. Nutrients that enhance immune system are vitamin C, vitamin E, the B vitamins, zinc and magnesium. These nutrients are potent antioxidants capable of stopping the free radical cascade of tissue damage or are involved in the production of enzyme that help detoxify damaging cells.

The aim of this study is, therefore, to conduct an ethnopharmacological survey of the plants commonly used by traditional medicine practitioners in Plateau state, Nigeria in the treatment of HIV/AIDS.

MATERIALS AND METHODS

Plants identification

A well-structured questionier was designed and administered to the traditional medicine practitioners in Plateau state, Nigeria. The author and the herbalists went to the field and collected the plants. They were identified by D.L. Wonang, Department of Botany and authenticated by F.C. Ohiri, Department of Pharmacognosy, University of Jos, Nigeria. Voucher specimens were deposited with the University of Jos Herbarium for future reference.

RESULTS

The plants were identified as in TABLE 1

DISCUSSION

Plants have millions of phytochemical and elemental components, that are responsible for their biological

TABLE 1 : List of plants used in the treatment of HIV/AIDS

Plant	Plant part	Commom names	Local names (Nigeria)
Allium sativum	Bulb	Garlic	
Andrographis paniculata	Leaves	King of bitters	
Anogeissus leiocarpus	Leaves/stem bark	Chew stick	Marike(H), atara (I), ayin (Y)
Balanites aegyptiaca	Root/stem bark	Soap berry tree	Aduwa (H)
Carica papaya	Leaves	Pawpaw	Gwanda (H), ogede oyibo (I), Ibepe (Y)
Cucumis metuliferus	Fruits	African horned melon	Kandar garki (H)
Dialium guineense	Fruits	Black tamarind	Tsamiyar kurmi (H), Icheku (I), awin (Y)
Garcinia kola	Fruits	Bitter kola	Namijin goro (H), adii (I), orogbo (Y)
Jatropha curcas	Leaves/stem bark	Barbados nut; physic nut; pig nut	Birni dazugu (H), owulu idu (I), botuje (Y)
Momordica charantia	Leaves	Balsam pear, bitter gourd, wild cucumber, bitter apple	Garahunu (H), alo-ose (I), ejirin wewe (Y)
Moringa oleifera	Leaves	Horse radish, never-die, drum stick tree	Zogale(H), ekwe igba; okwe oyibo; ikwe-beke (I)ewe igbale; ewe ile (Y)
Nauclea latifola	Leaves	Pin cushion tree; African peach	Tafaashiyaa; igiya'a (H), adi; uburu-inu (I) egbeshi; abisi (Y)
Parkia biglobosa	Seeds/root bark	African locust bean	Dorowa; dadawa (H), ogiri; ogirili (I), igba; iru (Y)
Polygala arenaria	Dried shoot		Shani ka sanni; gujiyar dawaki (H), ogilisi (I), akoko (Y)
Vitex doniana	Leaves/stem bark	Black plum	Dinya; burzun dinyaa (H), elili; ucha kiri; mbembe (I), ori nta; ori (Y)

H- Hausa; I-Igbo; Y-Yoruba (Nigerian major languages)

activities. These materials are distributed throughout (but not uniformly) the entire plant. Wannang et al., have reported the presence of selenium, calcium, iron, sodium, magnesium, ascorbic acid, vitamin A and fibre in the fruit pulp of Cucumis metuliferus[5]. Anogeissus leiocarpus is reported to contain aluminium, selenium, zinc and magnesium in the roots, while the stem bark contains trimethoxyflavellagic acid[6]. The leaf of Moringa oleifera is reputed to contain protein, vitamins, water, fatty acids and oil, carbohydrate, fibre, ash, and minerals: calcium, iron, potassium and phosphorus[7]. Kumar and Pari, showed the antioxidant property of the leave extract of Moringa oleifera[8]. The leaves of Carica papaya is reported to contain carpine alkaloid, flavonols, benzylglusinolate and tannins[9], while the fruit contains phytoalexin, butanoic acid, papain and citric acid. Mojica-Henshaw et al., showed that these materials are responsible for immunomodulatory and antibacterial activity[10]. Jatropa curcas is reported to contain tetramethylpyrazina, water, protein, fat, carbohydrate, fibre, ash and curcin. The leaves contain steroidal components, terpenoids and alkaloids[11]. These materials have been demonstrated to be responsible for pharmacological activities[12]. Curcin has anti-tumour property[13].

Momordica charantia contains alkaloids (charantin, charine, curcubitacin, curcubitan), glycosides, unsaturated fatty acids, uracil, vicine[14]. Studies have shown that extracts from this plant have potent antiprotozoal activity[14]. The author also showed the antiviral property and immunostimulatory effects of the plant in-vivo. Nauclea latifola has indole-quinazoline alkaloids, glycoalkaloids and saponins[15]. Quinn, showed the antiviral (Hepatitis C virus) activity of the aqueous extract. N-tritriacontane, zinc, magnesium, manganese isolated from the leaves of Vitex doniana are said to be responsible for antioxidant property[6].

All the traditional medicine practitioners agreed that food/nutrition is essential in the treatment of HIV/AIDS. Indeed, some of the cocktails included things like snails, lizards etc added to the herbal preparation. This could be explained in terms of protein supply to the patients. It is also possible that a portion of the herbs/cocktail may be appetite stimulating, as evidenced in the work of Wannang and Omale[16]. Thus, specific objectives might be to improve the quality of diet to build or replenish body stores of micronutrients, to prevent or stabilise weight loss, to preserve muscle mass, to prevent diarrhoea, to speed recuperation from HIV-related infections, and to prepare for and manage AIDS-related symptoms that affect food consumption and dietary intake.

Quite frankly, some challenges were encountered, there are signs that some of the plant-based remedies offered by the healers may not necessarily have proven antiviral property, but treatment is, more often than not, symptomatic. A majority of patronage could be based on access, affordability, and at times effectiveness when used appropriately. These herbs actually have not been proved to have the pharmacological properties in curing HIV, There is need for further research into these herbal plants with potential anti-HIV/AIDS properties to ascertain whether the claimed property is as a result of the pharmacological activity or the observed effect is that of placebo.

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REFERENCES

[1] W.H.O.Quality control methods for medicinal plants materials. WHO, Geneva, **(1992)**.
[2] A.Sofowora; Journal of ethnopharmacology, **38**, 209-214 **(1993)**.
[3] N.N.Wannang, N.S.Jimam; Nigerian Journal of Botany, **20(1)**, 187-197 **(2007)**.
[4] Q.C.Zhang; Journal of Naturopathic medicine, 365-369 **(1992)**.
[5] N.N.Wannang, N.S.Jimam, S.S.Gyang, B.B.Bukar, S.Gotom; African Journal of Pharmacy and Pharmacology, **2(3)**, 8-58 **(2008)**.
[6] M.Quinn; NAPRALERT query for Anogeissus leiocarpus, Nauclea latifolia, Vitex doniana, Ximenia americana, Vernonia amygdalina, University of Illinois, Chicago II, **(2006)**.
[7] A.Sofowora; Medicinal plants and traditional medicine in Africa (Reprinted Edition) John Wiley and

Full Paper

Sons, Pp. 1-40 **(1984)**.

[8] A.K.Kumar L.Pari; Journal of Medicinal Food, **6(3)**, 255-259 **(2003)**.

[9] J.A.Duke; Handbook of medicinal herbs, CRC press Inc.USA, Pp.100-101, 253-254 **(1985)**.

[10] M.P.Mojica-Henshaw, A.D.Francisco, F.De Guzman, X.T.Tigno; Clinical hemorheol Microcirc, **29(3-4)**, 219-229 **(2003)**.

[11] N.Ravindranath, M.R.Ravinder, G.Mahenda, R.Ramu, R.K.Kumar, D.Biswanath; Phytochemistry, **65(16)**, 2387-2390 **(2004)**.

[12] G.E.Trease, W.C.Evans; Trease and Evans Pharmacognosy, 13th Edition, Bailliere Trindal Publications, London, Pp. 627-751 **(1989)**.

[13] J.A.Duke, Moringa oleifera Linn, Jatropa curcas; In Handbook of energy crops (unpublished) **(1983)**.

[14] T.Leslie; The Healing Powers of Rainforest Herbs, **(2005)**.

[15] M.W.Iwu, A.R.Duncan, C.O.Okunji; New antimicrobials of plant origin, In perspective on new crops and new uses, J.Lanick (edition), ASHS.press, Alexandria VA, Pp 457-462 **(1999)**.

[16] N.N.Wannang, S.Omale; The orexigenic effects of the fruit pulp extract of Cucumis metuliferus (cucurbitaceae) in rats, Journal of Pharmacy Research, In Press **(2009)**.