



RESEARCH ARTICLE

AN ETHNOBOTANICAL STUDY OF ANTI-RHEUMATIC PLANTS IN SOUTH-WESTERN STATES OF NIGERIA

*¹Ogunmefun, O. T. and ²Gbile, Z. O.

¹Biological Science Department, Achievers University, Owo

²Biological Science Department, Olabisi Onabanjo University, Ago-Iwoye

Received: 12th, August, 2011; Received in Revised from: 25th, September, 2011; Accepted: 19th, October, 2011; Published online: 27th, November, 2012

ABSTRACT

Literature is reviewed on rheumatism as a disease and some known therapeutic agents used for its treatment in both orthodox and traditional medicines given. Recipes of traditional remedies obtained from market surveys are also given. The local and common names as well as their medicinal uses are mentioned. An objective listing of anti-rheumatic plants is presented giving their known active chemical constituents as well as indicating in a few cases their pharmacological activities.

Key words: *Premna serratifolia* Linn (Verbenaceae), Carbontetrachloride; Paracetamol

INTRODUCTION

Never are we reminded of Wordsworth's outburst: "The world is too much with us; late and soon, getting and spending, we lay waste our powers: Little we see in nature that is ours" (Thomson, 1976). Nature has been so much kind to us if only we could make use of the resources that are freely given to us and so, there are a lot of reasons why we must not lay waste our powers and therefore there is a great need to search for alternative sources of drugs. For instance, most synthetic drugs usually are associated with a lot of side effects which could be deleterious to health of humans and in some cases could be hazardous. Orthodox medicine used for the treatment of rheumatism, for example, aspirin is a synthetic drug extracted from the bark of various species of willow trees and this has been found to cause stomach ulcer.

Also, clinoril is contraindicated in patients who are hypersensitive to clinoril and in those with acute asthmatic attacks (John, 1985), a situation which is not found in most of the natural remedies. The problem of non availability of some orthodox drugs has also warranted the search for alternative sources of drugs which is cheaper, safer with little or no side effects at all. Rheumatism is used to denote any combination of muscle or joint pain, stiffness, or discomfort arising from non specific disorders. It is generally used as a lay expression to indicate a chronic or recurrent condition affecting a certain area and precipitated by cold, dampness or strain. *Myositis* denotes an

inflammation of a muscle; *myalgia* refers to muscle pain or tenderness without inflammation. *Fibrosis* is an inflammation of fibrous connective tissue, usually that of a joint and related structure which follows exposure, strain, trauma or infection. Rheumatism include all the above non-specific disorders and is best reserved for complaints not related to specific disease such as arthritis, rheumatic fevers, trichinosis or others that may cause the same or similar symptoms. *Lumbago*, *wryneck*, *charley house* and *shinsplint* are the catchall category of rheumatism (Stuart and Mottet, 1971). Arthritis is a general term used to denote an affliction which may be inflammatory, of one or more joints, the symptoms vary with the cause.

Arthritis is of different types: *Osteoarthritis*, which is the most common form of arthritis, is frequently associated with aging (primary type) or *trauma* (secondary). *Rheumatoid arthritis* is the second most common type. Rheumatoid arthritis is a chronic inflammatory condition characterised by swollen joints, anaemia, lymph node enlargement and connective tissue disturbance; it may have an auto immune basis (FARR, 1988). Rheumatoid arthritis is also called literally rheumatism in joints. It is a chronic system ailment due mostly to exposure to wind, cold, and dampness. Generally, onset is slow, though fever may be present during the acute stage. Distribution of joint pathology is frequently symmetrical, beginning with small joints, especially proximal joints of the fingers, and later involving the wrist, elbow and knee joints. These joints frequently swell up spindle-shaped. In the later stages, the joints are mostly deformed, stiff and inflexible. The cause as well as the causative agent is unknown and cannot be transmitted from person to person or

*Corresponding author: yinkatayo_08@yahoo.com

to animals. It is also unknown whether it is heritable. (John, 1985). The measures taken to prevent it are those for rheumatism. Treatment should suppress the wind and dispel the cold, activate the blood and clear the passage ways. (Awosika, 1990).

MATERIALS AND METHOD

Herbal recipe were collected from different herb sellers in the South Western parts of Nigeria and were identified at the Department of Botany and Microbiology herbarium of the University of Ibadan. The folkloric uses and the local preparation methods of these recipes for the treatment of rheumatism were gathered from the interview of herb sellers. The uses of these plants were cross – checked from literatures and in cases of proven ones were documented to justify the uses of these herbal recipes in traditional medicine.

RESULT

Table 1: Recipes Collected From Markets In Oyo State

Market	Family	Botanical Name	Vernacular Name	Part used
Bode (Ibuko), Ibadan	Annonaceae	<i>Xylopia aethiopica</i>	Eeru	Leaves, Bark, Seed & Fruits
	Meliaceae	<i>Mangifera indica</i>	Mangoro	Leaves& Bark
	Meliaceae	<i>Khaya ivorensis</i>	Oganwo	Bark
Akesan, Oyo town	Annonaceae	<i>Xylopia aethiopica</i>	Eeru	Fruit
	Malvaceae	<i>Gossypium barbadense</i>	Owu	Leaf
	Olacaceae	<i>Olax subscorpioidea</i>	Ifon tutu	Bark
	Polygalaceae	<i>Securidaca longepedunculata</i>	Ipeta tutu	Bark

Table 2: Recipes Collected From Lagos State

Market	Family	Botanical Name	Vernacular Name	Part Used
Kosofe, Lagos	Annonaceae	<i>Uvaria afzeli</i>	Gbogbonse	Root
	Annonaceae	<i>Xylopia aethiopica</i>	Eeru	Seed
	Meliaceae	<i>Entandrophragma utile</i>	Jebo	Bark
	Meliaceae	<i>Khaya ivorensis</i>	Oganwo	Bark
	Moraceae	<i>Ficus mucoso</i>	Obobo/ Ediso	Bark
	Olacaceae	<i>Olax subscorpioidea</i>	Ifon	Root
	Phytolacaceae	<i>Petiveria alliacea</i>	Awogba	Root
	Polygalaceae	<i>Securidaca longepedunculata</i>	Ipeta	Root
	Zingiberaceae	<i>Aframomum melegueta</i>	Ataare	Leaves

Table 3: Recipes Collected From Markets In Ogun State

Market	Family	Botanical Name	Vernacular Name	Part Used
a. Itoku, Abeokuta	Annonaceae	<i>Uvaria sp</i>	Agbarietu	Leaves
	Apocynaceae	<i>Alafia barteri</i>	Awun/Aliun	Leaves, Roots
	Apocynaceae	<i>Alstonia boonei</i>	Iranje	Bark
	Euphorbiaceae	<i>Securinaga virosa</i>	Orogbo	Roots
	Guttiferae	<i>Garcinia kola</i>	Olojaona	Roots
	Meliaceae	<i>Micalysta macrophylla</i>	Osanwewe/ Orombo	Roots
	Rutaceae	<i>Citrus aurantifolia</i>	Jagain	Roots
	Rutaceae	<i>Citru sp</i>		Roots, Seed
b. Lafewa, Abeokuta	Annonaceae	<i>Uvaria chamae</i>	Eruju	Roots
	Apocynaceae	<i>Alstonia boonei</i>	Awun	Bark
	Caesalpiniaceae	<i>Cassia sieberiana</i>	Aidan tooro	Roots
	Mimosaceae	<i>Tetrapleura tetraptera</i>	Aidan Onigun	Roots
	Palmae	<i>Elias guineensis</i>	Eesan/ Ekuro	Fruit wall
	Pandaceae	<i>Microdesmis puberula</i>	Igi-ope	Roots
	Sapindaceae	<i>Lecaniodiscus cupanioides</i>	Apata	Roots
			Aka/ Akika	

DISCUSSION

Most herbal recipes collected from different markets are prepared by boiling together and the decoction administered while soap is made from some recipes and rubbed as cream on the affected parts. *Allium ascalonicum* (bulb),

Chenopodium ambrosioides L Tetrapleura tetraptera (fruits) and *Citrus aurantifolia/Citrus aurantium* (roots) is made into soap and rubbed as cream on the affected parts. Also, *Vernonia conferta*, *Chlorophora excelsa*, *Olax subscorpioidea* and *Bridelia atroviridis*, the part used being all roots is macerated in alcohol (Schnapps) and taken as shot twice daily (Sofowora, 1996). The active constituents in some proven recipes are also given e.g. *Allium sativum* (bulb) is known to contain allin and allicin which is antirheumatic (Xaio, 1983); *Alstonia boonei* (bark) has triterpenoid which is an essential application in rheumatism (Dalziel, 1937). *Xylopia aethiopica* (fruit) contains kauren-diterpenes which is also anti-inflammatory {Boakye- Yiadom et al (1977)}. *Xylopia aethiopica* (Dunal) A. Rich.(Common name: Ethiopian pepper) is known to treat eczema, sore throat, nerve pain, bad temper, dizziness, bronchitis, purgative, neuralgia, diabetes, infertility, active carminative and stimulant. Stomach ache, cough, mental disorders, amenorrhoea, antimicrobial activity and *Mangifera indica*

jaundice, anthelmintic, skin disease, anaemia, arthritis, emetic, emenagogue while *Gossypium barbadense* Linn. (Common name: Cotton tree) is for treating bronchitis, lymphatic tumours, urethral discharge, cold and wounds. (Odugbemi, 2008) *Olax subscorpioidea* Oliv. (Common names: Olax, Stink ant forest) is for treating yellow fever, stomach pains, venereal diseases, rheumatism and arthritis pain, jaundice, guinea worm, mental disorders, toothache and *Securidaca longepedunculata* (Common names: Violet tree, mother of all medicines) is for treating venereal diseases, rheumatic joints, diabetes, convulsion, fever, anti-inflammatory, diuretic, vermifuge, purgative, toothache, aphrodisiac, abortifacient. (Odugbemi, 2008) *Uvaria afzeli* Sc. Elliot (Common name: Cluster pepper) is for treating yellow fever, liver, kidneys, bladder ailment, coughs and gonorrhoea while *Entandrophragma cylindricum* (Dawe & Sprague) Sprague (Common name: Cedar mahogany) is known for treating earache, toothache, rheumatism and active analgesic for kidney pain, diabetes, cough, fever, gastrointestinal disorders, black tongue, stimulant.(Odgbemi, 2008)

Ficus mucoso Welw. (Common name: Fig) is used to prevent miscarriage, leprosy, diarrhoea, bronchial infections, effective oedema and insomnia and *Petiveria alliacea* (Common name: Anamu) is an all purpose herb for cancer, antimicrobial, diabetes, stroke, diuretic, sedative, abortifacient, analgesic, anthelmintics, cough, insecticide, snake repellent.(Odugbemi,2008) *Aframomum melegueta* K. Schum. (Common names: Alligator pepper, grains of paradise) is for treating chickenpox, measles, and tapeworms; stimulant, wounds, smallpox, coughs, anaemia, rheumatism, malaria, toothache while *Alafia barteri* Oliv. (Common names: Alafia chewing stick, guinea-fowl's crest) is known for treating malaria, epilepsy, rheumatic pains, toothache, eye infections.(Odugbemi, 2008) *Alstonia boonei* De Wild (Common names: Stool wood, pattern wood) is for treating malaria, epilepsy, rheumatic pain, filaria worms, yellow fever, chronic diarrhoea, sores and ulcers and *Securinega virosa* (Roxb.) Baill. (Common name: Securinega) is an active laxative, stimulant and analgesic, diarrhoea, dysentery, jaundice, sickle cell anaemia.(Odugbemi, 2008) *Garcinia kola* Heckel (Common name: Bitter kola) is used in the treatment of jaundice, impotence, cough, colics, bronchitis, throat and respiratory ailments, liver disorders, headaches, evacuant, anticancer and *Citrus aurantifolia* (Christm.) Swingle (Common names: Lime, Swing) is useful in treating stroke, chronic sores, typhoid, hepatitis and asthma, fever, jaundice, antimicrobials, abdominal ulcers, gonorrhoea, measles, hypertensive recipe, flavouring agent, cough, toothache, anthelmintic, scurvy.(Odugbemi, 2008)

Uvaria chamae P.Beauv. (Common name: Cluster pear) is used to treat piles, nose bleeding, vomiting of blood, blood in urine, catarrh, bronchitis and gonorrhoea, jaundice, yellow fever, purgative, sores while *Cassia sieberiana* DC. (Common name: Aidan tooro) is for treating jaundice, leprosy, backache. (Odugbemi,2008) *Tetrapleura tetraptera* (Schum.& Thonn.) Taub (Common name: Aidan onigun) is used in the treatment of arthritis, flatulence, active emetic and laxative; remedy for eczema, chickenpox, strong emetic and purgative and *Elaeis guineensis* Jacq. (Common name: Red oil palm) is for treating eczema and chickenpox, active

placenta expellant.(Odugbemi, 2008) *Microdesmis puberula* (Hoof) Explanck (Common name: Microdesmis) is useful for treating worms, eczema, chickenpox, diarrhoea, dysentery, impotence, enema, wound, eye drop; *Lecanioidiscus cupanioides* Planch. (Common name: Lecanioidiscus) is for the treatment of burns, boils, cuts, wounds, fevers, liver abscess, purgative, toothache, gonorrhoea, general weakness (Odugbemi Tolu, 2008).

Conclusion

It could be concluded that many recipes used locally for the treatment of rheumatism contain some active ingredients which are used in literatures as above for the scientifically proven ones. This therefore justifies their folkloric uses as cure for rheumatism. It could also be noticed that some recipes collected from different markets keep repeating themselves from one herb seller to the other in different markets showing that truly they must contain active constituents needed for curing rheumatism or for its treatment. These plants include *Xylopia aethiopica*, *Olax subscorpioidea*, *Citrus spp.* *Alstonia boonei* e.t.c. Therefore, it could be concluded that many natural remedies carry their cures along with them. (Thomson W.A.R.). However, the search still continues for improving the natural remedies and the orthodox medicine should therefore help the traditional medicine to implement these areas especially the crude method of preparation and in the dosage form.

REFERENCES

- Adesina, S.K., M. Gopalakrishnan (1988) Studies on some plants used as anticonvulsants in Amerindian and ...books. Int J Crude Res; 26 (3):127-140.CP100.
- Akinsanya, B, A.A. Hassan, W.A. Adegbaju (1960) Prevalence of parasitic infections in Cichlids from Eleyele River J. Chem. Soc. 3827.
- Awosika, Fola (1990) Epidemiology of Poisoning and Antidotes Used In Toxicology; Journal of Clinical Pharmacy and Herbal Medicine Vol. 6 No. 10811.
- Ayin, J.S.K. (1988) "The State of medicinal plants research in Nigeria "in: Pharmaceutical raw material sourcing in Nigeria, Prospects, Achievements and Problems. (Opakunle, W.O. and Jaiyeoba, K.T. Ed.). The Department of Pharmaceutics and Industrial Pharmacy, College of Medicine, University of Ibadan, Ibadan. Nigeria pp. 31-34.
- Boakye – Yiadom, K., N.I. Fiagbe, J. Aymin, S. Llyodia (1977) Fungitoxic effects of extracts from some West African Plants, Annals of Applied Biology Volume115 Issue 3, Pages 451-453.
- Chapman and Hall (1982) Dictionary of Organic Compounds pubs.acs.org/doi/abs/10.1021/ci00015a604.
- Dalziel, J.M. (1937) The Useful Plants of West Tropical Africa, Crown Agents, ... Hutchinson and Dalziel 1963.
- Evans, G and E. Trease (1989) Trease and Evans' Pharmacognosy 13th ed. © Bailliere Tindall 24-28 Oval Road. London NW17DX.
- Farr, A.D. (1988) Dictionary of Medical Laboratory Sciences Blackwell Science Ltd 326 pages, USA.
www.amazon.com/Dictionary - M-L-S-Farr/.../06320/7627

- Ferreira, S.H., J.R. Vane (1974) Mar, Prostaglandins, aspirin-like drugs and the oedema of inflammation; Nature 246: 217 – 219.
- Glasby, John S (1991), Dictionary of Plants containing Secondary metabolites copyright © J.S. Glasby; Taylor and Francis, London.
- Hamburger Jean, R.N. Hill, F.N. Silverman (1985) Organ Physiology: Structure and Function of the Kidney... 3023, Phytochemistry, 24, 2689.
- Hasan, H.R., D.A. White and R.J. Mayer (1982) The Alkaloids Chemistry and Pharmacology. Vol. 51 Phytochemistry, b21, 1365 .
- John, A (1985) in “Disease: Manifestation and Pathophysiology: Rheumatology” John Wiley & Sons, New York,1992 in Remington’s Pharmaceutical Sciences 17thed Mack Publishing Co., USA.
- Kimbu, S.F.B. (1979) Plant products of Tropical Africa J. Chem. Soc., Perkin I, 1303 p.97.
- Marini-Bettolo, T. Sakan, N.G. Naishi (1983) Tetrahedron, 39, 323 (isol, cryst.struct.) in Dictionary of terpenoids by Connolly, J.D., Hill, R.A.-1991-Science-2156 pages.
- Nakano, T., H. Yang and S. Terao (1962) Tetrahedron Letters 665, Chem. Ind. 1651.
- Odugbemi, T. (2008) A Textbook of Medicinal Plants from Nigeria pp. 97- 147 © Tolu Odugbemi University of Lagos Press, Akoka, Yaba – Lagos, Nigeria.
- Oliver- Bever Bep (1986) Anti – infective activity of higher plants... NIH publication no. 01 - 4499 in Medicinal Plants in West Tropical Africa pp. 195- 214. Research Triangle Park, N.C.
- Sofowora Abayomi (1996) Research in Medicinal Plants and Traditional Medicine in Africa; The Journal of Alternative and Complementary Medicine. Fall 1996, 2(3) 365 – 372 doi 10. 1089/acm 1996.2.365. Published in Volume: 2 Issue 3. August 27, 2007.
- Stuart, E.G. and N.K. Mottet (1971) “Rheumatism” in Encyclopaedia of Science and Technology McGraw Hill, Inc. Vol. II, pp 576-577, Philippines Copyright 3rd ed.
- Thomson, W.A.R.(1976) “Herbs that heal” (n)
- Winter, C.A., E.A. Risley, G.W. Nuss (1962) Carrageenin-induced oedema in hind paw of the rat as an assay for anti-inflammatory drugs In: Proc.. Soc. Exp. Biol. Med. ...
- Woodbury and Fingl, (1975): Toxicology and Applied Pharmacology: Aspirin- induced hypocalcemia in Goodman and Gilman.
