

MEDICINAL PROPERTIES OF SOME HERBAL PLANTS: A REVIEW

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ABSTRACT

Medicinal plants of recent have found application in the treatment of various ailments and diseases. This is as a result of their effectiveness, affordability, availability, low toxicity and acceptability. Also the toxicity and adverse effects of conventional and allopathic medicines have also been important factors in the sudden increase in population demands and increase in the number of herbal drug manufactures as well as a reduction in the use of chemical drugs. As a result of these developments, this study is aimed at reviewing the medicinal properties of some herbal plants. Seven medicinal plants were selected for the purpose of this study and the health, nutritional and medicinal properties were reviewed. It was observed that these herbal plants contain phytochemicals, antioxidants and mineral components that are of great benefit to human health.

Introduction:

In recent years, medicinal plants are gaining a lot of importance nowadays because of their efficacy in traditional healing. Researchers are turning focus on the traditional healers in order to find plant based drugs. As the modern antibiotics have various anarchic toxic effects, these plant extracts could serve as a better alternative as bacterial agents (Kuatsienu, 2012). Also, there has been a great deal of interest recently in the role of complementary and alternative medicines for the treatment of various acute and chronic diseases. Plants, vegetables and spices used in folk and

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Traditional medicine have gained wide acceptance as one of the main sources of prophylactic and chemo preventive drug discovery and development (Akharaiyi & Boboye, 2010).

Today, according to the World Health Organization (WHO), more than 80% of the world's population rely more often on traditional drugs, mainly plants, serving as the main source of health care. Furthermore, nearly all cultures and civilizations from ancient times to the present day have depended fully or partially on herbal medicine because of their effectiveness, affordability, availability, low toxicity and acceptability (Akharaiyi & Boboye, 2010). Also, Approximately, 20% of known plants have been used in pharmaceutical studies, impacting the healthcare system in positive ways such as treating cancer and harmful diseases (Naczka & Sháhidi, 2006).

The toxicity and adverse effects of conventional and allopathic medicines have also been important factors in the sudden increase in population demands and increase in the number of herbal drug manufactures as well as a reduction in the use of chemical drugs. In fact, the use of medicinal plants for the treatment of diseases dates back to the history of human life, that is, Since human beings have sought a tool in their environment to recover from a disease, the use of plants was their only choice of treatment (Halberstein, 2005).

Furthermore, due to fewer communication means poverty, 1gnorance and unavailability of modern health facilities, most people still forced to practice traditional medicines for their common day ailments (Phillipson .2011). The medicinal value of plants lies in some chemical active substances that produces definite physiological actions in the human body (Kuatsienu, 2012). Secondary metabolites in or phytochemicals from plants have eminent pharmacological activities such as anti-oxidative, anti-allergic, antibiotics, hyperglycaemic and anti carcinogenic. These secondary metabolites protects the shell from the damage caused by

unstable molecules known as radicals. Also, there are growing interest in using natural antimicrobial compounds especially those extracted from plants for the preservation of foods. There is therefore the need to search for plants of medicinal value

The term medicinal plant refers to a variety of plants that have medicinal properties. These plants are a rich source of compounds that can be used to develop drug synthesis (Rasool, 2009) The parts of medicinal plants that may be used are different types of seeds, root, leaf, fruit, skin, flowers or even the whole plant. The active compounds in most parts of the medicinal plants have direct or indirect therapeutic effects and are used as medicinal agents. In the body of these plants, certain materials are produced and stored that are referred to as active Compounds (substances), which have physiological effects on the living organisms (Phillipson, 2011).

Phytochemicals are substances found in plants, though they are not regarded as nutrients but they promote health and prevent diseases. They are biologically active and naturally occurring chemical compounds which provide health benefit human. They have tremendous impact on health and health systems. The benefits includes the prevention and/ or treatment of diseases and physiological disorders (Sharma, Vivek, Gupta, Ganjewala, Gupta, and Prakash, 2017). The study on the medicinal plants is essential to promote its proper use and as a source for new drugs (Gayalakshmi, 2012). Therefore this paper is aimed at examining the medicinal properties of some herbal plants as listed below:

SOUR SOP (*Annona muricata*)

Sour sop, belongs to the family of *Annonaceae*. It is reputed for its edible fruit that is commonly called Sour sop (PIER, 2008). It is an evergreen terrestrial, erect tree reaching 5 - 8m in height. The edible fruit of the tree are large, heart shaped and green in colour, the diameter varies between 15 and 20cm (Morton, 1987). The pulp contains 55-170 black seeds covered with green peel. Peels and seeds are edible parts of Sour sop fruit. Sour - sop contains a large amount of by- product that have not been studied as a source of bioactive compounds.

Furthermore, biologically active phytochemicals are often present in leaves, roots, barks, flowers and stems, but the plant parts such as rind of the seed and fruit shell are treated as wastes and only few reports are available on these plant parts. Sour sop is found in rain forest throughout Africa, South America and Southeast Asia. In Nigeria, Sour sop is commonly found in Southern part of the country (Abbo, Olurin and Odeyemi, 2006). It) numerous health benefits have been linked to its antioxidant potentials (Agu, Okolie, Eze, Anonye and Falodun, 2017).

The properties of the plants have been attributed to some of its phytochemicals and Sour sop is loaded with nutrients such as amino acids, ascorbic acid, calcium, carbohydrates, iron, phosphorus, thiamine, fibres and riboflavin which can inhibit inside the body. These nutrients are vital for the overall development of the body (Rice et al., 2015). An impressive benefit of Sour sop fruit is that it helps in cancer treatment. Studies have shown that the extracts from Sour sop have proven a solution to breast and liver cancer cells (Gupta, Pandey, Shah, Yadav and Seth, 2011). Also, these antioxidants, especially vitamins C, (and) E, Zinc, and beta-carotene, have been found to decrease the risk of eye disease.

Sour sop possesses anti-inflammatory effect, it is also known for its analgesic effects. *Annona muricata* is used to cure inflammatory conditions like Flu and cough, its extract solution was applied on the body to treat rheumatism, arthritis and any other pain in joints (Padma *et al.*

2001). Also, sour sop possesses anti-diabetic properties. Also, the Sour sop leaf aqueous extract was found to inhibit (and even prevent) the hepatic oxidative damage caused in diabetes Patients (Adesuyiet al, 2012).

Furthermore, Sour sop fruit contains monosaturated fats that help in lowering the level of harmful cholesterol in the body and regulate blood pressure. It helps in balancing out high fats which we might have accumulated from high fats diets, it helps in reducing the cholesterol level in the body the bad cholesterol or Low-Density Lipoprotein (LDL) (Pandey et al., 2011). Also, the leaves of the sour sop plants are said to have hypocholesterolemic properties, which helps in the effective reduction of bad cholesterol in the body, and as such can prevent heart problems and

others. In some parts of the world such as in India and most part of Africa, sour sop has been locally used in the treatment of ill health conditions like fever and related conditions like hotness of the body, diarrhoea, malaria, dysentery and seizures. The leaves and the bark is (are) most effective in this kind of treatment, most times it is boiled in order to bring out the vital nutrients in the substances and taken orally accordingly (Okolie, 2013). Also, Tryptophan present in sour sop functions as aromatherapy that the body needs to make niacin and serotonin in order to produce better sleep. This is good for those who have sleeping disorders like "insomnia", not having enough sleep and others, as a daily intake of this fruit will help in bringing you nearer and nearer to a better sleep. (Agu *et al.*, 2017). Sour sop is also found to have antiulcer properties.

The fruit suppresses oxidative damage and preserves the mucus of the gastric wall. Hence, it is unlikely to cause gastrointestinal distress (Agu *et al.*, 2017).

WILD LETTUCE (*Launea taraxifolia*)

Wild Lettuce (*Lactuca taraxacifolia*) also known as bitter opium, Dandelion or African Lettuce is a neglected indigenous leafy vegetable in Nigeria. It is a perennial herb and member of the Asteraceae family, is mainly found in the Tropics (Adinortey, 2012). It is commonly called *efo yanrin* and mostly consumed among the Yoruba tribe of Nigeria (Sakpere *et al.*, 2011). The leaves of wild lettuce can be eaten fresh as salad or cooked in soups and sauces (Sakpere *et al.*, 2011). The plant over the years has been reported to possess many ethno pharmacological properties on disease conditions such as water retention disorders, conjunctivitis, yaws, improper bone fixation in infants, and diabetes mellitus (Laleye, Mensah, Assogbadio and Alhisou, 2015). Also, leaves of Wild Lettuce have been used for centuries in Africa as a remedy for various diseases such as abdominal disorder, heart burns, dyslipidaemia and liver diseases.

BITTER MELON OR GOURD (*Momordica charantia*)

Momordica charantia (*M. charantia*) is also known as bitter melon, karela, balsam pear, or bitter gourd (Cefalu, Ye & Wang, 2008). *Momordica charantia* is a herbal, slender, tendril climbing, annual vine grown in

tropical and subtropical regions. It is a consuming and medicinal plant All parts of the plant, including the fruit taste very bitter it contains a bitter compound called momordicin that is believed to have a stomachic effect. Though they taste very bitter, they are filled with many beneficial antioxidants and essential vitamins (Taylor,2002) *Momordica charantia* has a number of purported uses including cancer prevention, treatment of diabetes, fever, HIV and AIDS, and infection. It may be beneficial in the treatment of diabetes. It also possesses properties like- anticancer, antidiabetic, anti-inflammatory, antimicrobial, antioxidant, antiulcer etc. It consists alkaloids, charantin, flavonoids, glycosides, phenolics, tannins, terpenoids etc (Sighn etal, 2012).

The fresh juice of the fruit is given in a dose of 15-20 ml to treat intestinal worms, anorexia and liver disorders. The juice of the fruit is consumed daily in a dose of 20-25 ml to detox the blood and act like a blood purifier. It contains an array of biologically active plant chemicals including triterpens, proteins steroids, alkaloids, saponins, flavonoids and acids due to which plant possess antifungal, anti-bacterial, anti-parasitic, anti-viral, antifertility anti-tumorous, hypoglycemi candanticarcinogenic properties. It is also found useful in the treatment of cancer and diabetes 10. It improves peristaltic movements of gastro intestinal tract and also improves the absorption in the intestines (Beloin, 2008). Regular use of bitter melon over a period of time helps to bring the blood sugar level down. The seed constituent vaccine may induce "favism", an acute condition characterized by headache, fever, abdominal pain, and coma (Raman & Lau ,1996).

GUAVA (*Psidium guajava*)

Guava, *Psidium guajava* L. is a small medicinal tree that is native to South America. It is popularly known as guava (family Myrtaceae) and has been used traditionally as a medicinal plant throughout the world for a number of ailments. All parts of this tree, including fruits, leaves AS a fruit, Guava is very common in Asian countries but occupies a greater space in western countries mainly because of its medicinal properties. It is a small tree

belonging to family *Myrtacea* (Manosroi, Dhumtanom and Manosroi, 2006). The fruit is basically green in colour which turns to yellow once it is ripened. Guava leaves are peeled and taken on empty stomach against diabetes. It has the power to lower blood sugar level when the fruit was taken without skin (Both the leaves and fruits of guava contain sufficient amount of dietary fiber that forms the base for treatment of Gastrointestinal problems, constipation and hemorrhoids. It also help in cleansing of the bowel. Guava fruit is one of the richest sources of dietary fiber and vitamin C which is high in composition to other fruits (John, Gala and Sawant, 2013)

Furthermore, Guava leaves have been found to be effective in curing cold and cough. It also contains good concentration of quercetin which has been shown to exhibit incredible antibacterial activity against dental plaque (Nordini Hasnor, Fathilah Rahim, 2013) Vitamin C content in guava is very high, it, has been discovered that it contains as high as 4 times more vitamin C than orange which make it good for treating scurvy. Due to the astringent property of guava, it can be used in treating toothache. (Nordini Hasnor ; Fathilah Rahim, 2013)

Also, the antioxidant, Lycopene is present abundantly in Guava plays a crucial role in preventing and fighting cancer especially prostate and breast cancer. Its alkaline nature give very good response against hyperacidity of the stomach. Guava leaves contain flavanoids and saponins that has been found to be an effective remedy in counteracting acidity and subsequent ulceration of the stomach (Uduak, James, Sunday and Wilson, 2012) It also helps in the treatment of hypertension and heart diseases, this is because it contains some amount of Potassium which helps to relax blood vessels and thus helps in controlling blood.

NEEM OR DONGOYARO (*Azadiracta indica*)

Azadiracta indica (Neem) is an evergreen tree, cultivated in various parts of subcontinent. Every part of the tree has been used as traditional medicine for household remedy against various ailment from antiquity. Chemical investigation on the products of Neem tree was extensively

undertaken in the middle of the 20th century. The Neem Tree is an incredible plant that has been declared the Tree of the 21st century by the United Nations (Puri, 1999) In India, it is commonly known as 'Divine Tree', 'Life giving tree', 'Nature's Drugstore', 'Village Pharmacy and Panacea for all diseases' (Shoforowa, 1993).

Extracts from the Neem tree (*A. indica*) are most consistently recommended in ancient medical texts for gastrointestinal upsets, diarrhoea and intestinal infections, skin ulcers and malarial. Its leave can be used as drug for diabetes, eczema and reduce fever. Barks of Neem can be used to make toothbrush and the roots has an ability to heal diseases and against insects. Also, the seed of Neem tree has a high concentration of oil. Neem oil is widely used as insecticides, lubricant, drugs for variety of diseases such as tuberculosis. Neem insecticides are active against more than 200 different types of insects, including head lie, fleas, locust and mosquitoes *Azadiracta indica* (Neem or dongoyaro) leaves has antibacterial properties and could be used for controlling airborne bacterial contamination of food substances in the residential premises.

Also, The Neem seed has also been used as traditional medicine to treat microbial infections. The aqueous extract of Neem has a powerful chemotherapeutic and viral agent(The leaves are carminative and expectorant, anti-inflammatory and anti-rheumatic , it is also useful in syphilis sores, ear ache boils and all blood impurities. Neem plant (*Azadirachta indica*) grows in tropical and semitropical regions. All parts of the Neem are used for curing of leprosy, eye defect, skin problems, ulcer, infections and many more and that is why it is called the "nature drug store" (Joddy and Sadam, (2011). It is also useful in syphillic sores, ear ache boils and all blood impurities. Extracts from neem tree(Juss) also called "*dogonyaro*" in Nigeria are most consistently recommended in ancient medical texts for gastrointestinal upsets, diarrhea and intestinal infections, skin ulcers and infections, and malaria(Schmutterer, 1995).

BITTER LEAF (*Vernonia amygdalina*)

Vernonia amygdalina is a medium sized shrub with abundant bitter principles in every part of it. It belongs to the family Compositae or Asteraceae. The plant is known as "Ewuro", "Olugbu" and "shuwakaa" in

Yoruba, Western; Igbo, Southern and Hausa, Northern Nigeria, respectively. It is a widely used local plant in Southern Nigeria for both therapeutic and nutritional purposes. Bitter leaf decoction of the plant is ethno medicinally employed as an anti-diabetic remedy (Okafor, 2009): It is also used as a local medicine against leech in some countries (Uduak James, Sunday & Wilson,2012). Bitter leaf is one important plant commonly grown in the tropical regions of the world with nutritional and health giving properties. (Azeez., Peretiomo-Clarke & k Okolie,2013) *Vernonia amygdalina* posses anti diabetic property, anthelmintic activities, antioxidant properties, hypolidemic and anticancer activity (Ijeh & Ejike,2011). Bitter leaf is reputed to have several health benefits. The organic fraction extracts of the plant was shown to possess cytotoxic effects towards human carcinoma cells of the nasopharynx (Izevbogie,2003).It is effective against amoebic dysentery, gastrointestinal disorders, and has antimicrobial and anti parasitic activities. The biologically-active compounds of *Vernonia amygdalina* are saponins and alkaloids, terpeñes, steroids, coumarins, flavonoids, phenolic acids, lignans, xanthones and anthraquinone , edotides and sesquiterpenes (Owoeye, 2010).

CONCLUSION

The universe is blessed with abundant herbal plants that are rich in antioxidants, phytochemicals, metabolites and vitamins which are essential for healthy living. The unique and very rich chemical composition and high nutritional properties of these herbal plants have been substances for the examined. These plants can be used as functional health enhancing food prevention of diseases and ailments which determines the quality of life for millions of people worldwide Hence, more attention should be given to their men and cultivation.

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