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Potential uses of ancient herbal preparations against non-communicable diseases

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Abstract

The aim of this study is to find the action in reducing risk of non-communicable diseases using traditional medicinal plants. The burden of chronic non-communicable diseases (NCD) cannot be reduced without equitable access to essential medicines. NCD medicines are critical to the treatment of cardiovascular diseases, diabetes chronic respiratory diseases (i.e.: chronic obstructive pulmonary disease, asthma), many cancer (including for palliative care), mental and neurological disorders demand for medicines is growing rapidly along with the rising number of NCD patients. This research was conducted among village people and medical practitioners by using questionnaires and observations in the areas such as Melfort, New Peacock, Nayapana, Sogama, Peacockhill, Chough Leigh, and Selvakandha. The study provides with a clear understanding on the medicinal benefits of traditional plants. Furthermore, these plants could be useful for the development of commercial drugs.

Keywords: NCDs, medicinal uses, Traditional herbal plants, Life style diseases

Introduction

Nowadays, non-communicable diseases are newly challenged to Sri Lanka. The country is in an advanced stage of a demographic transition by way of expectancy of people. At the same time, the epidemiological transition is shifting the disease burden from communicable diseases to what are popularly known as “lifestyle disease”^[1]. These are what health experts call non-communicable disease (NCDs) including cardiovascular diseases (such as heart attacks and stroke), cancers, chronic respiratory diseases (such as chronic obstructed pulmonary disease and asthma) and diabetes^[2]. There are several reasons for this emerging trend-urbanization, lifestyle transformations, and related factors. Individually and cumulatively, the epidemiological, demographic and socioeconomic transitions are fuelling a surge in NCDs which now account for 65% of all deaths in the country^[3].

Sri Lanka has a rich heritage of using medicinal plants for indigenous uses and practices. Some of the country's best herbal medicines have also been introduced worldwide, and new applications have been found for them in different parts of the world^[4]. However, the traditional systems of medicine such as Ayurveda, Sidda Unani indigenous, and homeopathy make use of plant species. In some of the plant species more than one plant part was used for medicinal purposes. Local village People and medicinal practitioners of this country where oral tradition is closely followed have made some of our medicinal plants world famous as they find diverse applications across the world^[5]. They had specified traditional food habits and simple life style followed throughout their generations. This influenced the ancient people to live a long life without any risk of non-communicable disease^[6].

Methodology

Data was collected from the local People and medicinal practitioners inhabiting the villages of Melfort, New peacock, Nayapana, Sogama, Peacockhill, Choughleigh, and selva kandha. In this study, data collection was based upon medicinally useful plants, plant parts, local names, and their economical values. Questionnaires were asked from local people and medicinal practitioners. At the time, actual applications were also observed during field work.

Result and Discussion

Aerva lanata

Aerva lanata is a forested, exhausted or moist, the perennial herb in the Amaranthaceae family of the genus *Aerva*. Polpala in local languages. The whole plant, especially the leaves, is

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edible. The leaves are commonly used in soup or eaten as spinach or as a vegetable.

Medicinal Uses: A leaf is prepared for treating sore throat and used in treatments against guinea-worm. It is used to wash Babies that have become unconscious during an attack of malaria or of some other disease. They are washed with a leaf decoction and at the same times smoke from the burning plant is inhaled. The leaf sap is also used for eye complaints. An infusion is given to cure diarrhea and in an unspecified manner at childbirth, and on sores. The root is used in snake-bite treatment. Flowers are used for pains in the lower part of the back. Leaves and flowers are reduced to ash which is rubbed into cuts on the back. Spiritually, it's believed that it gives protection against evil spirits, is a good-luck talisman for hunters, and safeguards the well-being of widows.

Achyranthes aspera

Achyranthes aspera L. (Family Amaranthaceae) is a common plant plentifully initiate in the wasteland. It is known as "Prickly chaff flower" in English and Gas karalhaba in local language and dialects. Plant yields achyranthine.

Medicinal uses of This plant can be used for the treatment of asthma, bleeding, in facilitating liberation, bronchitis, cold, cough, colic, debility, dropsy, dog bite, dysentery, ear complications, headache, leucoderma, pneumonia, renal complications, scorpion bite, snake bite and skin diseases etc. Its extractions are widely used to induce abortion, labor pains. To expel dead fetus, the remains of placenta after abortion. To stop excessive hemorrhage during pregnancy, body aches, fever, and loss of appetite (Anorexia). To treat Menoxenia (abnormal menses), habitual abortion, secretion of lochia, pain in ribs and infertility in women. Other useful for reclamation of wastelands and Leaf is consumed as a potherb.

Alternanthera sessilis

Alternanthera sessilis is an aquatic plant. The plant occurs around the world. The leaves are used as a vegetable. Sporadically it is cultivated for food and used in herbal medicines. It's known as Mukunuwenna.

Medicinal uses: Used to treat wounds, flatulence, cough, bronchitis and diabetes. Some people use this for treating night blindness. The leaves and stem of this plant are used as galactagogue and febrifuge, respectively. The fresh and immature leaves are used for treating indigestion. It is applied on inflamed wounds externally. An extract of the roots used in treatment for spermatorrhoea. Commonly used for a treatment of acne vulgaris, biliousness, dyspepsia associated with sluggish liver, chronic congestion of the liver, acute and chronic pyelitis, painful desire to urinate (strangely) and snake bites in Sri Lanka.

Acalypha indica

Acalypha indica L. (family: Euphorbiaceae) is a plant widely distributed throughout the plains of Sri Lanka and India. Kuppameni is a local name in Tamil.

Medicinal Uses: Leaves are mostly used in the form of powder or decoction. Mixed with garlic and are used as anthelmintic in worms and applied to scabies. The leaves juice mixed with oil forms is used as an application in rheumatic arthritis. Expressed juice is a safe, certain and speedy emetic for children in one teaspoonful doses in cases of croup. In smaller doses, it is an expectorant (a medication that helps bring up mucus and other material from the lungs, bronchi, and trachea) and is useful in chronic bronchitis and asthma. The decoction is employed in ear ache as installation

and also as fomentation round the aching ear. Also, cataplasm of the bruised leaves is applied to syphilitic ulcers, to maggot-eaten sores and also to relieve the pain of snakebites. The powder is used in bed sores. In a congestive headache, the expressed juice of the plant or leaves can be used for relieving it by causing hemorrhage from the nose. In cases of obstinate constipation of children, the paste of leaves made into a ball and introduced into the rectum relaxes the sphincter and produces free motions. An infusion of the root or the root bruised in water acts as a cathartic.

Amaranthus viridis

Amaranthus viridis is a species of family Amaranthaceae. it's also known as slim Amaranth or olive Amaranth. It is eaten traditionally as a vegetable in Sri Lanka and India.

Medicine uses: This has been used in Sri Lanka, Indian and Nepalese traditional system to reduce labour pain and act as an antipyretic. In the Philippines, the bruised leaves are directly applied on eczema, psoriasis, and rashes etc. Other traditional uses range from an anti-inflammatory agent of the urinary tract, diuretic, anti-rheumatic, anti-ulcer, analgesic, antiemetic, laxative, improvement of appetite, treatment of respiratory and eye problems, to the treatment of asthma etc.

Biophytum reinwardtii

Biopytium Reinwardt is a once a year of herb plant in the family of Oxalidaceae, its seem to be fond of a tiny tree.

Medicinal uses: Its leaves roots and seeds are used for its diuretic and an expectorant property in ayurvedic medicines which are used in the treatment of wounds, bruises, hypertension, asthma, phthisis, snake bite poisoning, and stones in the bladder etc. It also promotes suppuration.

Boerhavia diffusa

Boerhavia diffusa or Punarnava belong toward the family of Nyctaginaceae. This is also known as spiderlings, as this plant grows low and spreads like a spider web. Commonly used to call as Pita Sudda and Karichcharanai. It is taken in herbal medicine for pain relief and many other uses

Medicinal uses: The herb has been used in indigenous medicine from time immemorial. This is highly beneficial in the treatment of obesity, Dropsy (Edema), it increases the secretion and discharge of urine as it is effective in controlling excessive fluids filled in the body cavity. It is beneficial in the treatment of several stomach disorders as it is useful in strengthening the stomach and promoting its action particularly intestinal colic. Also, can be used for killing or expelling intestinal worms. It promotes the removal of catarrhal matter and phlegm from the bronchial tubes. Beneficial in the treatment of asthma. A paste of the root can be applied for oedematous swellings as a dressing. A hot poultice of the root can be applied with gratifying results to ulcers, abscesses and similar skin diseases.

Cassia tora

Cassia tora or tora belongs to the family of Fabaceae. This is an annual herb with a height of 30 to 90 cm. It has a pinnate branch, which is about 10 cm long.

Medicinal uses: Used as a coffee substitute and has a maturing and anodyne action. It is very useful in treating skin diseases like ringworm, itching or body scratch and psoriasis. Its paste is used for treating skin ailments.

The alcoholic or vinegar maceration of pounded fresh leaves is used externally to treat eczema and dermatomycosis (a skin disease caused by a fungus). A decoction of the fruit of

Cassia tora is used in the treatment of fever. It also acts as a liver stimulant, mild laxative, and heart tonic. Helps to maintain the level of cholesterol and also for getting rid of chronic diseases. Its powder is useful in combating indigestion, toning up heart muscles and purifying the blood. *Cassia tora* proves valuable in treating piles and hemorrhoids as well as relieve the pain caused on excretion.

Cardiospermum Halicacabum

It is an annual herbal plant, it's very common in the hot region. The roots and the leaves are commonly used for treatment. A decoction of the *Cardiospermum halicacabum* roots is given in half tablespoonful doses twice a day for bleeding piles. It can be used for treat relieve pains due to sprains and contusions about the joints. The leaves are used for rheumatism, nervous diseases, hemorrhoids and chronic bronchitis. The juice of the leaves is can used for treat the ear-ache and also used for the abnormal suppression of menses.

Medicinal uses: The leaves are applied as a poultice for skin eruptions. They are coated with castor oil and can be apply on swellings and tumours. The crushed leaves are inhaled to relieve headache. The seeds are used as a tonic in fever, and rheumatism. It is also used in preparing oil for infants when they find it difficult to breathe through the nose.

Centella asiatica

Centella asiatica belongs to the family of Apiaceae. These are slim, creeping plant that grows in muddy areas of Sri Lanka, India, Madagascar, South Africa and the tropics. Its common names are Gotukola, Vallarai.

Medicinal uses: The leaves of this plant have been used to treat leprosy, cancer, skin disorders, arthritis, hemorrhoids, and tuberculosis. As a nerve tonic to promote relaxation and to enhance memory. It is commonly used to rebuild energy reserves improve memory and treat fatigue, both mental and physical. Helps to improve the flow of blood throughout the body by strengthening the veins and capillaries. Useful for people who are inactive or confined to bed due to illness. And also, victorious for the treatment of phlebitis, varicose veins, leg cramps, swelling of the legs and "weightiness" or tingling in the legs.

Costus speciosus

Costus speciosus belongs to the family of Costaceae. Common names are Koltan, Tebu or crape ginger is possibly the best known cultivated species of the genus *Costus*. This differs from the common ginger by having only one row of spirally arranged leaves.

Medicinal uses: Mostly the rhizome of this plant is useful for medicinal purposes and it contains diosgenin, which is used for anti-fertility, anti-inflammatory, and antispasmodic treatment. And also helps to control the blood glucose level. Rhizome is edible after cooking and this can be used in treat boils, constipation, diarrhea, dizziness, headache, ear, eye, and nose pain, and to stop vomiting in India and Southeast Asia.

Eclipta prostrata

Eclipta prostrata, commonly known as False Daisy, Kikirindi, Karichalankanni. A plant belonging to the family Asteraceae. The herb contains mainly Coumestans which are known to possess a wide range of biological activity. This is used for the treatment of hepatitis and cirrhosis as an antibacterial and anti-hemorrhagic.

Medicinal uses: The expressed leaf juice is applied along with honey is a popular remedy for catarrh in infants. A preparation leaf juice used for anointing the head to render the hair black and luxuriant. The Plant is rubbed on the gums in a toothache and relieving headache and with sesame oil in elephantiasis. Roots are emetic and purgative. The leaf extract is considered as a liver tonic, rejuvenate, and chiefly good for the hair.

Hygrophila spinosa

Hygrophila spinosa belongs to Acanthaceae family. Its common name is Nirmulli or Gokulakanta. Medicinal uses: The plant is used as a demulcent, aphrodisiac, diuretic, urinary tonic and hepatic protective substance. The aerial parts and the roots are used in herbal preparations. The plant is also used as a treatment for rheumatism, Jaundice, inflammation, pain, hepatic obstruction, gout, bacterial infection etc.

Hemidesmus indicus

Hemidesmus indicus is a species of plants that is found in South Asia. Belongs to a family of Apocynaceae. the local names are Iramusu, Nannari.

Medicinal uses: The root of the plant has cooling, antipyretic, alexiteric (resistance to poison), and anti-diarrheal properties and used to cure various ailments of the body. Very useful in treating abdominal problems, skin diseases, bone ailments, respiratory disorders, urinary infections and some types of fever. This herb is also effective in foul body odor, blood disorders, dysentery, burning sensation, piles and eye troubles. It relieves inflammation of the urethra and burning micturition and is also helpful for third or fourth stages of syphilis. It stimulates the flow of bile and removing toxins from the body. It is a good diuretic and increases the flow of urine three to four times.

Justicia adhatoda

This is an esteemed Ayurvedic plant which can be propagated easily by cuttings. It grows to a height of 8 to 14 feet and has attractive white flowers.

Medicinal uses: Adhatoda is helpful for curing coughs, colds, and asthma and is easy to control. It improves the functioning of the respiratory system and the immune system. It is a constituent of many herbal cough syrups. A poultice of the leaves may be applied on wounds for their antibacterial and anti-inflammatory properties. The poultice is also helpful in relieving rheumatic symptoms when applied to joints. It has been used to control both internal and external bleeding such as peptic ulcers, piles, and bleeding gums. These herb plant can be exhibited antispasmodic, expectorant, and blood purifying qualities and also been used to speed delivery during childbirth.

Moringa oleifera

Moringa oleifera referred to as a "Murunga" it's the most widely cultivated species of the genus *Moringa*, and family of Moringaceae. It is an extraordinarily nourishing vegetable tree with a variety of potential uses. *Moringa* trees can be used to combat malnutrition, especially among infants and nursing mothers.

Medicinal uses: This plant is a good source of calcium and phosphorus. Also, these drumstick seeds are can be used for treating erectile dysfunction in men and also in women for prolonging sexual activity.

Muraya koengi

The curry tree (*Murraya koenigi*) is a tropical to a sub-tropical tree in the family Rutaceae, Often used in curries; the leaves go by the name "curry leaves." They are also called as "sweet neem leaves."

In medicine, there are many traditional remedies for everyday utilization. A few of them are as follows. As a skin medicine can be applied on a heat rash or a milk skin infection. It moves the digestive tract and allows easier motion of stools. To cure nausea brought on by pregnancy is cured.

Osbeckia octandra

Osbeckia is a plant in the family of Melastomataceae. It was named by Carolus Linnaeus for the Swedish explorer and naturalist Pehr Osbeck. Local names are Bowitiya, Heen Bowitiya.

These plants can be used to treat jaundice and other liver disorders.

Piper nigrum

Black pepper (*Piper nigrum*) is a flowering plant in the family of Piperaceae, it's cultured for fruit, these are can be used as a spice and seasoning.

Medicinal uses: Pepper has long been recognized as an ingredient for stimulating the appetite as well as an aid in the relief of nausea. It used as a medicine for a variety of ailments from paralysis to a toothache. This helps to reduce elevated body temperature due to fever. Black pepper is used in liniments and gargles. It can be used as carminatives to reduce stomach and intestinal gas and to stimulate the activity of the heart and kidneys. It is also an effective insecticide against houseflies. Gardeners use pepper sprays against several kinds of pests.

Plectantus ambonicus

Plectantus ambonicus, commonly known as katpoora valli, Country borage. The leaves have bitter, acrid, and aromatic properties. They are used as a constituent in some ayurvedic medicine as treatments for range of disorders.

Medicinal uses: used to treat a whooping cough, colic, diarrhea and cholera especially in children, It also used in medicines for halitosis, convulsions, epilepsy, cough, chronic asthma, hiccough, bronchitis, renal and vesicle calculi, strangury, hepatopathy and malarial fever.

Discussion

Our work is based on traditional plants used in folk medicine. There is an increasing demand for traditional plants based medicine for the treatment of various types of diseases due to low cost, lesser side effects, long-term effectiveness in a chronic condition. These indigenous methods of treatment based on medicinal plants are still an important part of their life. Currently, available therapies including chemotherapies have not been able to cure this devastating disease, and cause many undesirable side effects too. This situation is true for many non-communicable diseases especially for autoimmune and immune-mediated diseases. In future, these traditional plants can be used for developing commercial drugs.

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