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“Natural Immunity enhancers”-a review

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Abstract

Most of the Indian population believes in the use of herbal drugs for the treatment of diseases. The factors responsible for the usage of herbal remedies in India are their effectiveness, easy availability, low cost, comparatively less toxic effects and the shortage of practitioners in rural areas. The present review deals with the medicinal plants which can be used to strengthen, alter or enhance our immune system without producing any adverse effects.

Keywords: Immunity, Immunomodulators

Introduction

Herbal medicines continue to be a popular health care choice with the general public not only for health maintenance and well-being, minor ailment, chronic condition and serious chronic disease, such as the use of ‘Ginko biloba’ products for memory enhancement. The quality of herbal medicines is also important as regards their safety and safety concern with herbal medicines, including intrinsic toxicity as well as problems due to adulterations and contaminations continue to arise. The concurrent use of herbal and other medicines remains a major concern to health care professionals because of the potential for important drug interactions. The effects of herbal medicines are of course, brought about by their chemical constituents¹.

The presence of normal functioning of immune system is extremely important for a healthy life. It protects the body against invading microorganisms, toxins and foreign cells. Any hypo reactivity, hyperactivity, absence or abnormal activity of this system leads to a variety of diseases. Immunomodulators are the drugs which may modulate immune mechanism by either suppressing or stimulating one or more by the process like; antigen recognition and phagocytosis, lymphocyte proliferation, formation of antibodies, antigen antibody reactions, release of mediators due to immune response, modification of target tissue response. So Immunomodulators includes immunosuppressants and immunostimulants².

Natural drugs as immunity enhancers

Garlic (*Allium sativum*)

Allium sativum consist of the fresh or dried bulb and it belongs to family Liliaceae or Alliaceae. The drug constituents of enzymes like Allinase, peroxidase, myrosinase and Volatile oils. Sulphur containing compounds including allicin. Garlic is reported to possess medicinal properties like; diaphoretic, expectorant, antispasmodic and antiseptic properties².

Ginseng (*Panax ginseng*)

Panax ginseng consists of the roots of Ginseng belongs to Araliaceae family. White ginseng represents the peeled and dried root, but red ginseng is unpeeled, steamed and dried. It consists of active constituents like terpenoids, which contains three aglycone structural types-two tetracyclic dammarane type sapogenins and a pentacyclic triterpene oleanolic acid type. The drug is reported to have therapeutic properties like; thymoleptic, sedative, demulcent and stomachic properties².

Aswagandha (*Withania somnifera*)

Withania Somnifera consists of dried roots of family Solanaceae. It contains steroidal alkaloid like withanine, somniferine, and withanolide. The roots of the plant contain somniferine and the roots are generally used as a sedative and as a tonic in general debility and dyspepsia³.

Turmeric (*Curcuma longa*)

Curcuma longa consists of the dried rhizomes from the family Zingiberaceae. The major active ingredients of the rhizomes are curcumin, volatile oils, curcuminoids which is a mixture of curcumin, demethoxy curcumin and bisdemethoxycurcumin. The drug is used in treating swellings, insect bite and on wounds. The fresh rhizome is given in infants for the treatment of whooping cough³.

Roscoeia (*Roscoeia procera*)

Roscoeia Procera is a perennial herbaceous plant from the family Zingiberaceae. The roots of the plant are used as tonic. Ideal time for the collection of the roots is from September to October and the roots should be dried in the sun before being marketed³.

Jeevak (*Microstylis wallichii*)

The drug belongs to family Orchidaceae. This plant synthesizes secondary metabolites like alkaloids, aminoacids, trisaccharides, amines and purines to tolerate stress conditions.⁴

Rishbhaka (*Microstylis muscifera*)

Microstylis muscifera is from the family Orchidaceae. The stem is long, erect, and tuberous at the base with ovoid pseudobulbs sheathed. Pseudobulbs of the plants are used in the preparation of herbal formulation, which contain bitter principle, alkaloid, flavonoid and glycosides as active constituent. Pseudobulb are having medicinal properties like aphrodisiac, haemostatic, antidiarrhoeal, cooling and tonic actions⁵.

Polygonatum verticillatum

The rhizome of the drug is used in herbal formulations and the plant is from the family Liliaceae. The rhizomes of the plant contain lysine, serine, aspartic acid, threonine, diosgenin, sitosterol, sucrose and glucose as active principles. The powder made from the rhizome can decrease senility, debility and enhance other rejuvenating properties⁵.

Wild Bean (*Phaseolus trilobus*)

Phaseolus trilobus belongs to family Fabaceae. The plant is commonly found throughout the tropics and comparatively warmer regions of the world. The plant is reported to contain active constituents like dalbergioidin, kievitone, phaseollidin and flavonoid glycosides. The plant also contains proteins, minerals, and vitamin K, vitamin C along with friedelin, epifriedelin, stigmaterol and tannins. The therapeutically active morphological parts of the plant include root, leaf, seed and fruit. The above said constituent of the plant is accumulated in these morphological parts. The plant is reported with hepatoprotective and antioxidant properties⁶.

Jivanti (*Leptadenia reticulata*)

Leptadenia reticula are from the family Apocynaceae. The drug is used traditionally in treating tuberculosis, cough

and dyspnea. The plant contains active principles such as α -amyrin, β -amyrin, ferulic acid, luteolin, diosmetin, rutin, β sitosterol, stigmaterol, hentricontanol, a triterpenoidal alcohol simiarenol, apigenin, reticulatin, deniculatin and leptaculatin. The therapeutic effect of the plant could be due to these chemical principles.⁷

Jeevanti (*Holostemma ada kodian*)

Holostemma ada kodian is from the Apocynaceae family. The plant contains the terpenoid sugar. The plant is commonly used as an antipyretic, antioxidant and antibacterial⁸.

Giloy (*Tinospora cardifolia*)

Tinospora cardifolia is from the family Menispermaceae. The plant contains major constituents such as alkaloids, diterpenoids, lactones, glycosides, steroids, sesquiterpenoid, phenolic, aliphatic compounds and polysaccharides. The drug is used in treating jaundice⁹.

Kalmegh (*Andrographis paniculata*)

Andrographis paniculata is from the family Acanthaceae. The morphological parts generally used are leaves and roots. Andrographolide is the active constituent present in the plant parts and it is a diterpene lactone possessing bitter in taste.¹⁰

Licorice (*Glycyrrhiza glabra*)

Glycyrrhiza glabra consists of the dried peeled or unpeeled roots and stolons from the family Leguminosae. The constituents are glycyrrhizin and liquiritin. The plant also contains flavonoids like flavanols and isoflavanes, liquiritin. Licorice is used in the treatment of ulcer and in food industry as flavouring and sweetening agent³.

Dioscorea (*Dioscorea japonica*)

Dioscorea japonica consists of the dried tubers of the plant from the family of Dioscoreaceae. It is also known as rheumatoid root. The plant mainly consists of a steroidal compound known as diosgenin and is used as a precursor for the synthesis of several corticosteroids, sex hormones and oral contraceptives¹¹.

Aloes (*Aloe vera*)

It is a drought resistant herb from the Liliaceae family. The plant is having cosmetic and therapeutic properties. The plant is used in treating various diseases associated with skin. The plant is used in almost all the traditional system of medicine like ayurveda, siddha, unani and homoeopathy. The plant is used in treating burns, allergic reactions, rheumatoid arthritis, rheumatic fever, acid indigestion, ulcers, diabetes, dysentery, diarrhoea, piles and inflammatory conditions of the digestive system¹².

Bael (*Aegle marmelos*)

The plant is also known as wood apple. It belongs to Rutaceae family. The unripe or half ripe fruits of the plant are designated as a source of active constituents like furocoumarins, tannins and reducing sugars. The plant is used in treating diarrhoea and dysentery^{13,14}.

Arjuna (*Terminalia arjuna*)

The plant consists of dried bark from Combretaceae family. The drug mainly consists of tannins, calcium, magnesium

and aluminium salts. It is used as a diuretic, astringent and a febrifuge ¹⁴.

Brahmi (*Centella asiatica*)

It consists of the fresh and dried leaves and stems from Umbelliferae family. The plant mainly consists of saponin glycosides. The drug is used as a sedative, blood purifier and diuretic ¹⁴.

Chamomile (*Matricaria recutita*)

It is also known as *Marticaria chamomilla* from the family Asteraceae. The main constituents of this plant include the terpenoids α -bisabolol and its oxides and azulenes. The plant is reported to possess anti-inflammatory, anti-cancer, treatment of stress and depression and anti-allergic ¹⁵.

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