



REVIEW ARTICLE ON IMMUNOMODULATORS

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ABSTRACT:

Some of the medicinal plants known as Ayurvedic Rasayana for their medicinal properties have been scientifically investigated to obtain promising results. A number of plant-based rules are separated from potential body functions that can explain and correct its use in traditional medicine in the past and may be the basis for further research in the future as well. The purpose of this review is to highlight the results of studies conducted on immunomodulators of plant origin. he explained. The relationship and discussed biological testing methods for a variety of therapies focused on revealing a pathway involved in the immune system. This work will hopefully encourage researchers to do more work on medicinal plants with strong immune functions.

KEYWORDS: Cellular Immunity Humoral Immunomodulators Herbal Remedies Traditional Medicine.

INTRODUCTION:

IMMUNOMODULATOR:

These are biological or synthetic substances that can stimulate, suppress or repair any part of the immune system, including both flexible and innate weapons of the immune system.

CLASSIFICATION IMMUNOMODULATOR:

Clinically, immunomodulators can be divided into the following three categories:

IMMUNOADJUVANTS

It is used to improve the effectiveness of vaccines and therefore can be considered a protective stimulant. Immunoadjuvants promise to be real modules for the immune response. It has been suggested that it be used as an alternative between T1 (Th1) and T2 (Th2) helper, antibodies, antibodies, and reagenic [immunoglobulin E (IgE)] against IgG-type immune responses that challenge drug manufacturers indeed. igoli. Immunostimulants are not as natural as they are thought to improve the immune system. They can work by birth and the immune response is reduced. In healthy people, immunostimulants are expected to act as prophylactic and stimulant agents, i.e., as immunopotentiators, in development. basic immune system. In a person with an immune system, they are expected to act as immunotherapeutic agents.

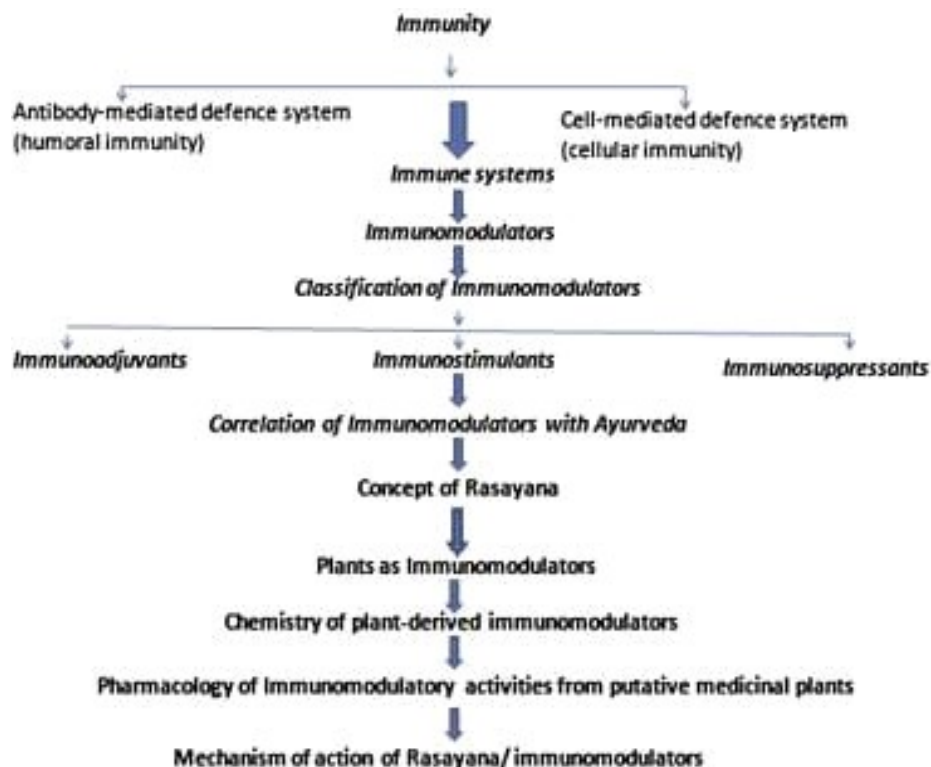
IMMUNOSUPPRESSANTS

These are group of systematic and effective drugs, often administered simultaneously in various forms of transplant therapy Ayurveda is a very old but important tradition now widely used in India, Sri Lanka and other countries. It has a solid foundation for philosophy and experimentation. Atharvaveda (c.1200 bc), Charak Samhita and Sushrut Samhita (1000–500 bc) ancient reference collections provide a detailed description of more than 700 herbs.

Immunostimulants are inherently non-specific as they are envisaged as enhancements to a body's Resistance to infection. They can act through innate as well as adaptive immune responses. In healthy Individuals, the immunostimulants are expected to serve as prophylactic and promoter agents, i.e., as Immunopotentiators, by enhancing the basic level of immune response. In the individual with Impairment of immune response, they are expected to act as immunotherapeutic agents.

CONCEPT OF RASAYANA :

The word Rasayana, a combination of two words (rasa and ayana), refers to nutrition and its transportation throughout the body. Rasayana therapy enhances the qualities of rasa, enriching it with nutrients so one can attain longevity, improved memory and intelligence, freedom from disorder, youthfulness, excellence of hair, complexion and voice, optimum development of physique and sense organs, mastery over phonetics and brilliance. As a dedicated stream of medication for immune promotion, antidegenerative and rejuvenating health care, the Rasayana therapy of Ayurveda is known to prevent the effects of ageing and improve the quality of life for healthy as well as diseased individuals. Rasayana is helpful to improve immunity and is normally advised during the degenerative phase of life, which starts from around 45 years in both males and females.



PLANTS AS IMMUNOMODULATOR:

Several medicinal plants used in the traditional Indian system called Rasayana (dedicated to improving the immune system) have attracted the attention of scientists. As discussed below, many medicinal plants show not only protective properties but also a wide variety of antioxidant, antiasthmatic, antiarrhythmic properties. Anti-inflammatory, hepatopic, hypocholesterolemic, antifungal, cardiogenic, diuretic, and other drugs.

Example: Tulsi, Yarrow, Ninjin

Numerous studies have reported the identification of immunomodulatory compounds with pharmacological activity and moderate toxicity. In this context, ethnopharmacology represents the most important way to discover interesting and useful medical molecules. Phytochemical analysis of Rasayana plants has revealed a large number of compounds including tannic acid, flavonoids, tocopherol, curcumin, ascorbate, carotenoids, polyphenols, etc., have been shown to have potent properties of immunomodulatory. Herbal remedies derived from traditional Indian medicine may promote immunity due to its content in plants with immune structures that may work in harmony. This definition and the lack of toxins may be important to understand their use in the past and present. From the above review it should be clear that there are many therapeutic plants that perform immune function in experimental models to some extent.

From the above review it should be clear that there are many medicinal plants that perform immune function in experimental models to some extent. arjuna, and some may suppress the immune response (*Alternanthera tenella*). Also, various secondary metabolites (e.g., alkaloids, glycosides, saponins), flavonoids, coumarins, and sterols) show an increase in body function. Successful reviews therefore benefit our above research.

CHEMISTRY OF PLANT-DERIVED IMMUNOMODULATORS:

Glycosides

These organic compounds from plant and animal sources, in addition to enzymatic or acid hydrolysis, produce one or more chemicals, acetals or sugar ether, formed by the interaction of hydroxyl groups of sugar and non-sugar components, with water loss. Many glycosides have been shown to perform the desired action of the immune system and their structures (numbers appropriate in parentheses). Examples include iridoid glycosides

Picrorhiza scrophulariiflora and anthraquinone glycosides Andrographis paniculata. Dendroside A and dendronobilosides A and B, three new sesquiterpene glycosides, are separated from the stems of Dendrobium nobile, a plant used in traditional Chinese medicine. Dendroside A and dendronobilosides A and B were found to promote an increase in murine T and B lymphocyte in vitro, whereas dendronobiloside B showed inhibitory activity in this same study.

Flavonoids

Chemically, flavonoids with fifteen carbon bones (C6-C3-C6) contain two phenyl rings attached to three carbon bridge. Several types of flavonoids perform immune functions, including apigenin, i -oligomeric proanthocyanidins, isoflavonoids, flavone, and anthocyanidin-like flavonoids. found in Terminalia arjuna.

Sapogenins

Sapogenins, such as triterpenoid saponins and diterpenes, perform many immune functions. Examples are Gymnema sylvestre, Chlorophytum borivilianum, Boswellia spp. And Randia dumetorum.

Alkaloids

These organic compounds are natural or synthetic, naturally occurring, consisting of one or more atoms of nitrogen, usually heterocyclic, of limited distribution and have certain functions in the human or animal body. 90 Achillea millefolium, Murraya koenigii, Cissampelos pareira and Actinidia Macrosperma are examples of alkaloids discussed in this review.

Thiosulfinates

These compounds also demonstrate potent immunomodulatory and adaptogenic properties, e.g., from Allium hirtifolium.

Volatile oils and terpenoids

The term terpene represents the hydrocarbons (C₅H₈), while terpenoids include the hydrocarbon as well as their oxygenated derivatives. Terpenes like carvacrol and the terpenoids are all volatile oils of plant or animal origin. 90 Various plant constituents with terpene moiety exhibit immunomodulatory activity, e.g., eugenol from Ocimum sanctum, diterpene from Andrographis paniculata, Achillea millefolium, Alternanthera tenella, triterpenes from Ganoderma lucidum, lupeol and amyryne in Bauhinia variegata.

Polysaccharides

Botanical polysaccharides show many beneficial therapeutic properties, and it is thought that the mechanisms involved in these effects are due to the natural variability of immunodeficiency and, in particular, macrophage activity. In addition, plant and microbial polysaccharides bind to higher receptors and bind to similar immunomodulatory responses to macrophages, suggesting that evolutionary polysaccharide properties are shared between these organisms. Therefore, testing of botanical polysaccharides provides a unique opportunity to find novel therapeutic agents and adjuvants that exhibit beneficial immunomodulatory properties. The immunomodulatory effects of Cistanche deserticola polysaccharide were tested by in vitro proliferation of murine thymus lymphocytes using the 3- (4,5-Dimethylthiazol-2-yl) -2,5-Diphenyltetrazolium Bromide (MTT) method.

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