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MEDICINAL PLANTS AND THEIR ROLE IN LONGEVITY OF LIFE

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ABSTRACT

Now a days of daily busy and stressful routine affect the human well-being. Decrease in quality of food and water is also affecting the health and youthfulness of life. In Ayurveda many medicinal plants are described which are useful to increase life span as well as quality of human life. Medicinal plants directly used to treat the disease conditions and also give support to physical, mental, social and spiritual wellbeing. There are many aspects where medicinal plants may be included like rasayana dravya, vegetable, fruits, Kitchen spices etc. In Ayurveda Achraya Charaka has stated about medhya drugs which are useful in maintenance of intellectual power. Few plants are also useful in stress management. Some of them are also religious plant that give moral support to human being and improve their spiritual power. Harbal gardens nearby area could be a place where one can get pollution free air as well as gain knowledge about medicinal plants and herb for their common ailments. Some of these plants are also used as immunomodulator. There are various common available plants which can be used for promotion, prevention and for curative purposes. Thus medicinal plants improves not only life span but the quality of life also. Present paper included some important medicinal plants and their role in longevity of life.

KEYWORDS: Kitchen spices, Pollution management, Intellectual power, Immunomodulator, Spiritual power booster.

INTRODUCTION

Ayurveda (Sanskrit word meaning "the scripture for longevity") represents an ancient system of traditional medicine in India about 5000 years old. Health problems are the serious issues on which everybody is concern. The concept of longevity is a big domain. Now a days people have a strong belief that Ayurveda is best in providing longevity. Medicinal plants improve life span and also help to get a better and healthy life. Here some medicinal plants are described which can be included in daily life style through many ways in order to achieve longevity.

Plants and herbs are an integral part of Ayurveda and have been using in management of many diseased conditions and play an important part in physical, mental, social and spiritual wellbeing since ancient time. Medicinal plants are included in daily life in many forms such as kitchen spices, pollution prevention, immunomodulator, intellectual power boosters etc. Spices are some of the most valuable items of trade in the world. The anti-proliferative, anti- hypercholesterolemic, anti-diabetic, anti-inflammatory effects of spices have overriding importance, as the key health concern of mankind nowadays is diabetes, cardio-vascular diseases, and arthritis. Because spices have very low calorie content and are relatively inexpensive, they are reliable sources of antioxidants and other potential bioactive compounds in diet. Alexander et al. shows, spices and herbs have been extensively studied in different countries because of the high antioxidant activity in certain spices and their beneficial effects on human health.[1] Black pepper has been reported to influence lipid metabolism predominantly by mobilization of fatty acids. Oral administration of cumin also showed hypoglycemic effect in normal rabbit, resulting in significant decrease in the area under the glucose tolerance curve.[2] Medicinal and aromatic plants are an important part of the natural environment and agro-ecosystem and contain wealth of chemical compounds known as secondry metabolites that help plants to cope with environment. In this way many herbs and plants are use full to provide a stimulus in a rapid reversible ecology. Singh et al. shows *Azadirecta indica A. juss* absorbs gases like CO2, SO2 etc. from atmoshphere thus contribute in a healthy atmoshphere.[3] Santosh et al shows coagulant property

of *Strychnous nuxvomica Linn*. that helps to decrease the lead and cadimium level and also decreases other pollutants of water.[4] Mood disorders are known to be associated with considerable burden of disease, suicides, physical co-morbidities, high economic costs, and poor quality of life. Therefore, it has become a major public health issue today. Acharya charak has described *Medhya Rasaayan* drugs which are used for rejuvention and treatment of mental disorders. *Centella asciatica Linn* has been reported having the capacity of neuronal dendritic growth stimulation, possess antioxidant property and delay neuronal apoptosis.[5] Chaudhary et al. shows that *Convolvulus pluricaulis willd* increases the AGhE activity, helps in regeneration of brain cells in dendritic arborization and improve memory.[6] In Ayurveda immunomodulators can be compared as *Rasayan dravyas. Withania sominifera* has been reported to increases bone marrow cellularity also enhances the circulating antibody titre when administer alsong with antigen (SRBC).[7] Plants have also played a vital role in development of human civilization since past time. Dolon et al. shows mythological values of many medicinal plants.[8]

KITCHEN SPICES

There are many medicinal plants commonly used as spices actively participate in maintenance of digestive system as well as all body system. Some medicinal plants also used as kitchen spices. Here some medicinal plants and their actions are described as below:[9]

Drug	Adrakh	Marich	Jeerak	Mishreya
Latin name	Zingiber officinalis Rose.	Piper nigrum Linn.	Cuminum cyminum Linn	Foenieculum vulgare Miller
Family	Zingiberaceae	Piperaceae	Umbelliferae	Umbelifarae
Chemical composition	Gingerol, g Gingiberine, Gingerine	Piperine 5.9%, piperidine 5 %, Aromatic oil - 1-2 %, fatty acid 7%	Thymene (volatile oil) – 3.5 – 5.2 %	Anethol (50-60%), Volatile oil (0.7-1.2%), stable oil (9-13%)
Pharmacologic al actions	Appetizer, digestive,anti-inflammatory, analgesic, antihaemorrhoidal, antispasmodic, aphrodiasac,	Stimulates salivation, vermifuge, appetite stimulant, liver stimulant, sweat channel stimulant etc.	Anti- inflammatory, analgesic, appetizer, analgesic, anthelmintic, diuretic, aphrodisiac etc.	Appetite stimulant and Digestive Analgesic, Alleviates swelling, cardiac stimulant etc.
Uses	Abdominal Pain , anorexia, nausea, vomiting, loss of appetite,indigestion, flatulence, jaundice, piles, ashthma, hiccough.	Loss of appetite , indigestion, liver dysfunction, hepatitis, splenomegaly, dysmennorea, impotency, skin disease.	Disturbance in agni, sprue, haemorrhoids, blood purifier, renal colic, calculi leucorrhoea,	Anorexia, emesis, loss of appetite indigestion, flatulence, Children's abdominal pain
Part used	Rhizome	Fruit , leaf	Seed	Seed, seed oil
Actions on Dosha and Dhatu	Kaphavataghna , Shukravardhak Raktdooshaka	Kaphavataghna, Pittavardhak, Shukravardhak,	Vata-pitta vardhak, Shleshmaghna Raktottejaka and Raktashodhan	Vata-kapha shamak, Shukravardhak

POLLUTION MANAGEMENT

Environmental health comprises aspects of human health including quality of life, which is also determined by physical, biological, social and psychological factor in the environment, it also refers to the theory and practice of assessing, correcting, controlling and preventing those factors in the environment that can potentially affect adversely the health of present and future generation. There are various type of environmental issues are there viz. Air, water and soil pollution.[2] Environmental pollution has become a serious problem due to rapid industrialization and random urbanization. Plants are the hope which can help to move up the pollutants by adsorbing, absorbing and metabolizing them from the atmosphere. Some plants contributes in pollution managements are as below:

Pollution type	Air pollution[3]	Water pollution[4]	Soil pollution[10]
Sources	Heavy traffic, industry, domestic fuel combustion, stone quarries, various agricultural activities etc.	Effluent outfalls from factories, refineries, waste treatment, contaminants that enter to water supply from ground water/ soil, atmosphere via rain water etc.	Active mines (industrial pollution), consumption of fossil fuels (oil pollution), fertilizers and pestisides, dumping of large qualities of solid waste, deforestation and soil erosion
Pollutants	Gases (CO_2, CO, NO_2, NO, SO_2, NH_3, volatile	Drainage water, heavy metal (Pb, Cd), fertilizers,	Chlorinated hydrocarbons, heavy metals, zinc,

	phenols, chlorine etc.	pesticides, industrial wastes and dead animals etc.	arsenic, and benjene, solid waste (pollythene)
Useful plant	Nimb	Katak	Kadamba
Latin name & Family	Azadirecta indica A. Juss (Meliaceae)	Strichnous potatorum Linn. (Loganiaceae)	Anthocephalusindicus var. glabrescens H.L.Li (Rubiaceae)
Actions	Absorb gases like SO2, Greater ability to adopt stress from exposure to air pollution	Act as natural coagulant in purification of water and also removing unpleasant odour.	Biofertilizer and helps to prevent soil erosion and deforestation Heavy leaf shedding property increases the organic carbon in the soil.

INTELLECTUAL POWER

Acharya charak has described *Medhya Rasaayan*[11] drugs which are used for rejuvention and treatment of mental disorders of all the age groups. Medhya comprises of all the three mental faculties- Dhee, Dhriti and Smriti and these are interrelated with each other.[12] Mood disorders are known to be associated with considerable burden of disease, suicides, physical co-morbidities, high economic costs, and poor quality of life. Therefore, it has become a major public health issue today. Unfortunately modern medicine based psychoactive drugs have met with limited success in treatment of various neurological and psychiatric disorders due to multi-factorial nature of these diseases. *Medhya Rasayanas* known as a great player for prevention and management of intellectual power. Few medhya plants and their actions are as below:[13]

S.No.	Name of Drug	Latin Name & Family	Actions
1	Mandukaparni	*Centella asiatica Linn.* Umbelliferae	Neuronal dendritic growth stimulation. Reduces brain regional lipidperoxidation (LPO) and protein carbonyl (PCO) levels. Increases anti-oxidant status. Balances the altered levels of neurotransmitters. Improves the mental ability and fatigue, Activation of glial cells and delay neuronal apoptosis
2	Yashtimadhu	*Glycyrrhiza glabra Linn* Fabaceae	Spatial learning and passive avoidance, Preliminary free radical scavenging, Antioxidant capacity towards LDL oxidation
3	Guduchi	*Tinospora cordifolia (willd)* Menispermaceae	Free radical scavenging properties Reduces in thiobarbituric acid reactive substances and increase glutathione catalase and superoxide dismutase (anti-oxidant)
4	ShankhPushpi	*Convolvulus pleuricaulis (willd)* Convolvulaceae	Anxiolytic activity Regeneration of brain cells in dendritic arborization Improved learning and memory Increases AGhE activity

IMMUNOMODULATOR

In ayurveda immunomodulators can be compared as *Rasayan dravyas*. According to Acharya Charak, *Rasayanas defined as* the means of achieving the finest quality of rasadidhatus (body tissues) where it increases life span, improves intellectuality, cure disease, stabilizes youthfulness, improves luster, complexion & voice and makes body and senses strong and healthy etc.[14] Few medicinal plants which are consider as immunomodulator are as below:[15][18]

S.No.	Latin name & Family	Actions
1.	Withania sominifera Linn. (Solanaceae)	Increases bone marrow cellularity Increases alpha-esterase positive cell count Enhances the circulating antibody titre when administer along with the antigen (SRBC)Increases the plaque forming cells (PFC) count in the spleen
2.	Acacia catechu Willd. (Leguminaceaea)	Increases the phagocytic index Protection from neutropenia Effects on cell mediated immunity Increases the serum immunoglobulin levels Increases the haem agglutination titre values

3.	Allium sativaum Linn. (Liiaceae)	Mitogenic activity (effects on lymphocytes, murine splenocytes and thymocytes) Hypersensitivity (effects on mast cells and phagocytes)
4.	Curcuma longa Linn. (zingiberaceae)	Anti-inflammatory effect Hepatoprotective Nematocidal activity Cellular and humoral immune responses

SPIRITUAL POWER BOOSTER

In *Ayurveda* '*manglacharan'* described during *aushadh grahan* shows the spiritual power and deep hreated respect and faith in plants. Worshipping the plants is a way of conservation and also a way to improve will power. It is the science which investigates myths or fables or legends founded from remote events to present day. Plants have played a vital role in development of human civilization since past time. In India, various plant species are associated with religious functions, rituals and also in calibration of festivals. A large number of plants provide not only food but also they provide curative medicine and shelter. Some medicinal plants having mythological value are as below:[19]

S.No	Latin name & Family	Mythological aspects
1.	Ficus religiosa L. (Moraceae)	One of the Leading trees in Hinduism and Buddhism. Known as the Bodhi tree because Gautama Buddha attained enlightenment under it. 'Ashwattha' is believed to be inhabited by the sacred triad – Brahma, Vishnu and Mahesh (Shiva).
2.	Ficus benghalensis L. (Moraceae)	Worshipped in 'Vata Savitri puja' in Jyestha Purnima or Amavasya.
3.	Ocimum sanctum L. (Labiatae)	Tulsi is worshipped as Goddess, also considered as a wife of Lord Vishnu. In Hinduism a common custom to place a sprig of tulsi near the head of a dying person. Tulsi leaves are used while offering Naivedya.
4.	Musa paradisiaca L. (Musaceaeae)	Worshipped in 'KadaliVrata' Worshipped in 'YaksaSamantakaKadaliVrata' In North Bengal, the whole plant is worshiped in 'katipuja' by infertile women. The leaf is used to make 'Kola bou'in'BijayaDashamiPuja' The candle strand is make by the plant in 'Kali Puja'.

DISCUSSION AND CONCLUSION

Medicinal plants helps in natural healing of body and mind by virtue of their properties. Plants have a wider range of metabolites which are being used by the people to live a healthy long life.Ayurveda has emphasised on 'Swasthasya Swasthya Rakshanam' that means to maintain the health and youthfulness of a person. It is said that "a healthy body keeps a healthy mind and vice versa". Medicinal plants help in both conditions to get a better life. Acharyas has decribed *rasayan, vajikaran, dincharya,,* and *ritucharya* in sseperate chapters where various medicinal plants have been described to fulfil the first aim of Ayurveda. Many medicinal plants have been described in *chikitsa, kalp and sidhhisthan* useful in many disease conditions in regard to meet out second aim of ayurveda. *Acharya charak* has also described about pollution in *janpadodhwans adhyaaya*. Pollution is also a inhibitory factor for longevity of life. Various studies reveals that medicinal plants are the hope to move on and save the earth.

Modern era of busy and stressful life needs a supportive aspect through Ayurveda to get a healthy life with youthfulness. Medicinal plants are used to treat the disease conditions and also give support to physical, mental, social and spiritual wellbeing. Commonly found medicinal plants have been described in paper which can be included in daily life to increase life span and also help to get a better and healthy life. . The above discussed plants are commonly found in India, play a great role in daily life of human being. These plants turn an ordinary life to an extraordinary experience. They have a diverse array of natural phytochemicals that have complementary and overlapping actions. As several metabolic diseases and age-related degenerative disorders such as cardiovascular disorders are closely associated with oxidative processes in the body, the use of herbs and plants as a source of antioxidants to combat oxidation warrants further attention.

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