

NEED FOR CONSERVATION OF MEDICINAL PLANTS, SIGNIFICANCE AND IMPORTANCE OF NATURAL ENTITIES FOR THEIR PROPER GROWTH**Archana S. Chougule ¹, Shrikanth P ²**

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ABSTRACT:

One of the prerequisite for the success of primary health care is the availability and use of suitable drugs. Plants have always been a common source of medicaments, either in the form of traditional preparations or as a pure active principal. An endangered species is a native species that faces a significant risk of extinction in the near future throughout all or a significant portion of its range. Such species may be declining in the number due to threats such as habitat destruction and climate change.

Medicinal plants participating remarkable role in primary health care of the people over the world. Forest is a main source for collection of the traditional medicinal plants. Presence of plant species in certain ecological areas is related to several ecological factors like water, temperature, light, pH etc. and also by various biotic factors

KEYWORDS: Conservation, significance of natural entities

INTRODUCTION:

India has a very rich plant biodiversity, many of which are medicinally useful. The rich resource is disappearing at an alarming rate as a result of over exploitation. Therefore, the management of traditional medicinal plant resources has become a matter of urgency. An ever increasing

demand of uniform medicinal plants based medicines warrants their mass propagation & conservation.

In recent years, medicinal plants have also been gaining immense popularity not only in developing countries but also in developed countries due to various well-known reasons like side effects of synthetic drugs. Therefore,

the demand for the basic raw material has been further increased and forest areas are hardly able to meet this increasing demand of industries. In view of the aforesaid reasons, there is an urgent need to conserve and to propagate some important medicinal plants species so as to save them from extinction and also to ensure greater availability of raw material.

NEED FOR CONSERVATION ¹

India has a rich resource base of medicinal plants, plush with about 8,000 different species. According to the Government of India (GoI), traditional medicines are the sole means of health care for about 65 percent of the population. The medicinal plants are basic raw material for the production of Ayurveda medicines. The bulk of the raw material (about 80% of the demand) is derived from the forests only. Hence, the forest areas have been over exploited in the past to meet the requirement of the pharmaceutical and allied industries. Consequently, many of the important plant species have been threatened and some of them are on the verge of extinction due to unscientific collection by untrained persons.

In recent years, medicinal plants have also been gaining immense popularity not only in developing countries but also in developed countries due to various well-known reasons like side effects of synthetic drugs. Therefore, the demand for the basic raw material has been further increased and forest areas are hardly able to meet this increasing demand of industries. In view of the aforesaid reasons, there is an urgent need to conserve and to propagate some important medicinal plants species so as to save them from extinction and also to ensure greater availability of raw material.

A total of 560 plant species of India have been included in the International Union for Conservation of Nature and Natural Resources (IUCN) Red List of Threatened species, out of which 247 species are in the threatened category. On a global basis, the IUCN has estimated that about 12.5% of the world's vascular plants, totaling about 34 000 species are under varying degrees of threat.

IUCN recognizes the following categories: extinct, extinct in the wild, critically endangered, endangered, vulnerable, near threatened, least concern, data deficient and not

evaluated. Species with small populations that are not at present endangered or vulnerable but are at risk are called rare. Many of them are facing extinction. In the past few decades, there has been an ever-increasing global inclination towards herbal medicine, followed by a belated growth in international awareness about the dwindling supply of the world's medicinal plants. The plants used in the phytopharmaceutical preparations are obtained mainly from the naturally growing areas. The genetic diversity of medicinal plants in the world is getting endangered at alarming rate because of ruinous harvesting practices and over-harvesting for production of medicines, with little or no regard to the future. Also, extensive destruction of the plant-rich habitat as a result of forest degradation, agricultural encroachment, urbanization etc. is other factors, thus challenging their existence. While reviewing the literature it is found that the common medicinal plants that are becoming endangered include Guggul, Katuki, Jatamansi, Tagara, Kushta & Pashanabheda. So in this study

Pashanabheda & Kushta is been selected ².

CONSERVATION OF RARE AND ENDANGERED PLANTS ³:

IN SITU CONSERVATION

Most medicinal plants are endemic species, and their medicinal properties are mainly because of the presence of secondary metabolites that respond to stimuli in natural environments, and that may not be expressed under culture conditions. In situ conservation of whole communities allows us to protect indigenous plants and maintain natural communities, along with their intricate network of relationships. Additionally, in situ conservation increases the amount of diversity that can be conserved and strengthens the link between resource conservation and sustainable use. In situ conservation efforts worldwide have focused on establishing protected areas and taking an approach that is ecosystem-oriented, rather than species-oriented. Successful in situ conservation depends on rules, regulations, and potential compliance of medicinal plants within growth habitats.

EX SITU CONSERVATION

Ex situ conservation is not always sharply separated from in situ conservation, but it is an effective complement to it, especially for those overexploited and endangered medicinal plants with slow growth, low abundance, and high susceptibility to replanting diseases. Ex situ conservation aims to cultivate and naturalize threatened species to ensure their continued survival and sometimes to produce large quantities of planting material used in the creation of drugs, and it is often an immediate action taken to sustain medicinal plant resources. Many species of previously wild medicinal plants cannot only retain high potency when grown in gardens far away from the habitats where they naturally occur, but can have their reproductive materials selected and stored in seed banks for future replanting.

SIGNIFICANCE OF NATURAL ENTITIES IN PLANT GROWTH:

ALTITUDE: As a general definition, altitude is a distance measurement, usually in the vertical or "up" direction, between a reference datum and a point or object. Although the term altitude is

commonly used to mean the height above sea level of a location, in geography the term elevation is often preferred for this usage.

Elevation plays a large role in the health and growth of plants. Elevation may affect the type and amount of sunlight that plants receive, the amount of water that plants can absorb and the nutrients that are available in the soil. As a result, certain plants grow very well in high elevations, whereas others can only grow in middle or lower elevations.

SUNLIGHT: Plants in higher elevations typically receive more direct sunlight than plants of lower elevations. In addition, these plants receive a special type of sunlight, which has short-wave radiation. Whereas this poses an advantage for higher elevation plants because they receive more sunlight that they need to grow, it can also damage the plants if the short-wave radiation exceeds a certain amount. Lower elevation plants typically require less sunlight, and they are safer from many short-wave radiation waves, which do not reach further down into lower elevation regions of Earth's surface.

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WATER: Plants in lower elevations are more affected by droughts, compared with plants of higher elevation. Higher elevation plants typically receive a lot of rainfall, which trickles down a mountain in the form of streams or rivers.

NUTRIENTS: The nutrients in the soil are affected by both elevation and location. This indicates that even the slightest change in elevation can yield significant differences in the kinds and health of vegetation in the area.

CLIMATE: Climate plays a large role in what types of vegetation can grow in a certain area. In higher altitudes, the wind and coldness become a large factor in vegetation development. The plants in these areas can withstand both freezing temperatures and a lot of direct sunlight throughout the day.

SOIL: Soil supports plant growth by providing:

1. Anchorage: root systems extend outward and/or downward through soil, thereby stabilizing plants.
2. Oxygen: the spaces among soil particles contain air that provides oxygen, which living cells (including root cells) use to break down sugars and release the energy needed to live and grow.

3. Water: the spaces among soil particles also contain water, which moves upward through plants. This water cools plants as it evaporates off the leaves and other tissues; carries essential nutrients into plants; helps maintain cell size so that plants don't wilt; and serves as a raw material for photosynthesis, the process by which plants capture light energy and store it in sugars for later use.

4. Temperature modification: soil insulates roots from drastic fluctuations in temperature. This is especially important during excessively hot or cold times of year.

5. Nutrients: soil supplies nutrients, and also holds the nutrients that we add in the form of fertilizer.

CLIMATE & TEMPERATURE ON PLANT

GROWTH: Increases in temperature raise the rate of many physiological processes such as photosynthesis in plants, to an upper limit, depending on the type of plant. These increases in photosynthesis and other physiological processes are driven by increased rates of chemical reactions and roughly a doubling of enzymatic product conversion rates for every

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10 °C increase in temperature. Extreme temperatures can be harmful when beyond the physiological limits of a plant which will eventually lead to higher removal of moisture content from plant.

One common hypothesis among scientists is that the warmer the area is, the higher the plant diversity. This hypothesis can be observed in nature, where higher plant biodiversity is often located at certain latitudes (which often correlate with a specific climate/temperature).

DISCUSSION:

India has the rich sources of raw materials like Amalaki , Ashwagandha, Sarapagandha, Amalaki, Pippali, Guduchi , , Brahmi, Vasa , Bringh raj, Haridra, solanum species, Musli and Arjuna etc., though India is rich in Biodiversity, we are failing in production of these crops in large scale due to lack of herbal material for their production of high quality drugs so it is high time to educate the farmer

and create awareness regarding cultivation of medicinal plants in large scale is the immediate need. So conservation plays a pivotal role in maintaining balance in the ecology.

CONCLUSION:

It is known fact that if we change the habitat of the plant it becomes very difficult for the plant for its survival rate. Until and unless the ideal temperature, climate, soil, humidity etc factors are not there then it's very difficult for the overall growth of the plants.

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