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## The Cultivation Of Medicinal Plants Through Waste Land In Tamilnadu, India

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### Abstract:

*Through India having great biodiversity nearly 8.0%, a very large part (20.16%) of total geographical area of the country is occupied by the waste land. Adoption of inappropriate soil and crop management practices following grassland cultivation exacerbated processes of land waste land resulting in rapid expansion of land desertification in semi arid region of the world including India. Many medicinal plant species have spread globally both via intentional and carefully planned transfer and as the unintentional outcome of people's movements. The demand of Indian medicinal plants has increased over the years in the international market. To meet out the demand of medicinal plants at international market we should use waste lands of the country, this practice will help to save the crop land from overburden, different researches explain that the cultivation of various medicinal plants, helps to reclaim the waste lands.*

### KEYWORD:

Wasteland Land, Environmental, Rehabilitation, Medicinal Plants.

### INTRODUCTION

There are over 500 species of medicinal plants reported so far from Tamil Nadu. They can not only cure our ailments but can also be potential source of economy to the state. It will open up avenues in cultivation, processing, packaging, marketing and industrial application. The medicinal plants are found throughout the state. Some of them are much sought after by pharmaceutical companies. Quite obviously it is the rural people, particularly the unemployed woman and children, who would be benefited by these ventures. The demand for medicinal plants are ever increasing as people are more and more fascinated towards herbals. Extraction from wild has its own problems and risks. We need to cultivate for larger production and authenticity. Cultivation will help in conservation of some of our medicinal herbs that are being pushed to the danger of extinction. Cultivation of medicinal plants are not only economical but are ecologically safer too. We have different agroclimatic conditions available in the state depending up on the altitude. Practically any type of land available can be used to cultivate one or the other medicinal plant. Thus they are useful for jhum fallows, wastelands, forest lands, river banks, marshy areas, roadsides, farm yards, home gardens and the like. There could be some species suiting to these conditions. These plants in various combinations can be used to make multitier plantation. After identifying the land next step is the choice of species. Depending on the altitude of the place it may either be species of low altitude or high altitude. In general it should be economically profitable. For optimum productivity it may be a farm of single species or preferably combinations of trees, shrubs, herbs and climbers. Fortunately we have a number of species to choose. These species combination for low and high altitude are given in table. Some of the most economical plants are coleus and senna Ranvolfia, Tinospora, Withania, etc in low altitudes. While for high altitudes it is Aconitum, CoptisGymnadaenia, Illicium, Panax, Picrorrhiza, Rubia, Taxus, etc. These are described below.

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### Reclaiming the wasteland through the cultivation of medicinal plants

India accounts for nearly 8.0 % of the biodiversity of the world. Though having great biodiversity, a very large part (20.16%) of total geographical area of the country is occupied by the waste land. Adoption of inappropriate soil and crop management practices. By the process of land degradation resulting in rapid expansion of land desertification Medicinal plants represent by the number of species used, the widespread nature of: their use and their contribution to human health, perhaps one of the most significant ways in which humans directly reap the benefits provided by biodiversity. Most of the people depending on traditional medicine live in developing countries and it has been estimated that between 60 and 80% of people worldwide rely mainly on traditional herbal medicine to meet their primary health care need. Out of 17,000 plant species the classical systems of medicines like Ayurveda, siddha and unani make use of only about 2,000 plants in various formulations. About 400 plants are used in regular production of Ayurvedic, Unani, Siddha and tribal medicine. About 75% are from tropical and 25% from temperate forests. 30% of preparations are roots. 14% bark, 16%, whole plants, 5% flowers, 10% fruits, 6% leaves, 7% seeds, 3% wood, 4% rhizomes and 6% stems. Only less than 20% (including spices) are cultivated [20]. Though India is endowed with a rich wealth of medicinal and aromatic plants, but despite the rich heritage of knowledge on the use of plants drugs, little attention had been paid to grow them as field crops in the country [21]. The demand of Indian medicinal plants has increased over the years in the international market. World Health Organization (WHO) has estimated the present demand for medicinal plants is approximately US \$ 14 billion per year according to an estimate of WHO, the demand for medicinal plants is likely to increase more than US \$ trillion in 2050. To meet out the demand of medicinal plants at international market we should use waste lands for their cultivation. This practice will help to save the crop lands from overburden different researches leucocephala. The were lowest under explain that the cultivation of various medicinal plants helps to reclaim it. Therefore this practice will be solving two purposes [22]. 'Prospects of cultivation of aromatic crops on salt affected wastelands' selection of suitable crops is of great economic impotence in exploiting sodic plantation. The nutrients returned lands and put them to use under proper management.

### OBJECTIVES

The huge Wasteland of rural areas in Tamil Nadu can be utilized for the purpose of medicinal plant cultivation practices. The cultivation of lightly demanded medicinal plants not only evolves a new site for economics up liftmen of rural people but also solves the following problems.

- a. Utilization of wastelands for better economy
- b. Utilization of employment youth in lightly constructive works
- c. Enhancement of income
- d. Providing sufficient raw materials for the medicine manufacturing firms
- e. Maintaining the balance between ecology and biodiversity
- f. Development of double cropping system by mixing medicinal plants with other crops.

**Table 1:**  
**Category wise percentage of waste lands as on 2010 as percentage of total waste lands in India.**

Gullied and or ravenous land	4.22
Upland with or without scrub	40.20
Water Logged and marshy Land	3.11
Land affected by Salinity / Alkalinity- Coastal / Inland	4.58
Shifting Cultivation Area	6.30
Under Utilized waste land Notified Forest Land	2.01
Waste land pastures / Grazing Land	5.20
Degraded Land under Plantation Crops	1.91
Sands - Inland / Coastal	2.91
Mining and Industrial degraded	33.01
Barren Rocky / Stony Waste / Sheet Rocky Area	1.52
Deep Slopping Area	2.40
Now covered and or glacial Area	9.30
Note: Total degraded land as a percentage of geographical area is 33.01	

**Table 2: List of Medicinal Plants recommended by various waste lands cultivation**

Local name	Life form	Parts used	References
Aloe vera	Herbs	Bark, flowers and seeds	31,32
Ashwagandha	tree	Roots and leaves	31,32
Neem	tree	All parts	23,26,30,32
Lemon grass	Herbs	Leaves	22,27,
Amla	Tree	Fruits	26,27,31,32,33
Amaltas	Tree	Fruits and seeds	28
Satavari	Climber	Dried roots	31,32
Bans	Tree	Leaves	33
Karanji	Tree	Seeds oils and Leaves	26,29,34
Anjeer	Tree	Bark fruits and flowers seeds	35
Ber	Shrubs	Fruit, root and bark	25,29
Dudhi	Herbs	Whole plant	24
Tendu	Tree.	Barks fruit	29
Isabgol	Shrubs	Seeds and husk	36
Jamun	Tree	Fruits and leaves	28,29

The developing countries like India due to high population rate there is extreme pressure on crop lands and simultaneously in recent years the demand of Indian medicinal plants species is increasing day-by-day therefore we will have to explore the methods of implanting medicinal plants in waste land, most of the studies reveal that plantation of medicinal plants in waste lands also help in reclaiming the degraded lands.

Generally, cultivation of grassland is accompanied by losses of soil organic C and nutrients, which indicated waste land. A glove analysis of soil C loss following cultivation of grasslands indicated a 20% reduction of the initial organic C. Similar analysis estimated a 30% soil organic C from the entire soil column with in 20 years following cultivation, with the majority of this loss occurring with in the first 5 year. The increase in land cover of natural vegetation areas in addition to the appearance of new land uses, as well as the abandonment of grazing and pine afforestation in old fields, has favored the increasing widespread nature of wildfires. This drift in human activities could lead to the degradation of dry lands [4-5].

In arid and semi-arid lands of Spain rainfall and soil, water availability for plants has been described as one of the most decisive factors controlling productivity and heterogeneity in plant distribution and life-forms. The initial step in ecosystem rehabilitation projects is to identify the most important constraints to crop or tree productivity, as well as defining the specific land restoration objectives. Some soils can be recovered through the use of fertilizers, others need more drastic rehabilitation techniques and there are situations of extreme degradation where soils cannot be recovered [13-15]. The effect of land abandonment on soil restoration may be dependent on the soils and climatic conditions of the area. Soils under favorable climatic conditions that sustain plant cover may improve with time by accumulating organic material, increasing floral and faunal activity and decreasing erosion potential. Where vegetation recovery is slow and erosional processes may be active, the soil restoration of the abandoned lands may be a very slow process or irreversible the restoration time of degraded ecosystem is also related to how serious and how much it has been disturbed [8,9]. In recent years the concept of high density plantation system has gained immense interest in order to efficiently combine and utilize the land, labor and water resources for meeting immediate requirements of rural communities for wood fuel, fodder and timber, including other minor forest produce. High density plantations of tropical species had been under taken in a few species such as Eucalyptus, Mesquite, Leucaena Loreus, sernua Terminalia arjuna [6,7].

Indigenous species have proved successful in environmental rehabilitation because of their adaptation to local condition. In the Thar Desert and Sahel regions the low successes of tree planting trials for the rehabilitation of these ecosystems have been attributed to the poor performance of exotic species in comparison to the Indigenous species [8,9]. Improvement of soil water by appropriate water-harvesting methods, careful selection of tree and shrub species that tolerate saline soils is important in the rehabilitation of saline soils in arid range lands, for increased productivity. The potential of some leguminous trees for rehabilitation of waste lands environments. A marked improvement in biogeochemical characteristics was reported, including that of the mycoflora of sodic wastelands. The use of trees for rehabilitating marginal sites is a well-known forestry practice. Techniques for rehabilitating such sites in the temperate zone have been described by many workers [28-34]. The reintroduction of native plant species is a widely used practice for reclaiming degraded lands in semi arid Mediterranean areas. Revegetation programs based on the planting of native to shrubs help conserve biodiversity and prevent erosion and desertification of arid and semi arid landscapes.

The role of revegetation for rehabilitation of sodic soils in semiarid subtropical forest India was reported and about 28 species were found naturally regenerating in our rehabilitated forest, which was about 64% of the total species listed in the forest and these may be considered adapted to sodic. Soils. Some of the important ones may be cited here for further trials on sodic lands.

## CONCLUSION

In developing countries due to high population rate the cultivated land is under high pressure for more and more food production. India has very good wealth of medicinal plants since past but due to increasing population some important medicinal plant species have lost their diversity and shifting towards extinction. There is great demand of Indian medicinal plant in world market. Therefore to save the important medicinal plants they may be cultivated as waste land of her country, as different medicinal plants also reclaim the waste soil clear from the review. Thus plantation of herbal plants at waste land will help to save the diversity of these herbal plants and simultaneously will help to minimize the pressure on crop lands and reclaim the waste land of the country.



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