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Current Issue

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PRINCIPAL
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"TRADITIONAL METHOD FOR RAISING THE RICE SEEDLINGS FAVOUR
THE CONSERVATION OF TIMBER AND MEDICINAL PLANTS"

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(RESEARCH PAPER IN BOTANY)

Abstract

Today, in the global movement of conservation of biodiversity many ecologists and conservationist are engaged to discover new conservation strategies. A method identified here is old traditional method routinely used by farmers, unknowingly contributing in the conservation of timber and medicinally important plants from the last several years in the foothills of western ghat (UNESCO World Heritage Site) of Maharashtra, India. Due to this practice billions of tree plants such as *Terminalia elliptica* Willd., *Terminalia paniculata* Roth, *Terminalia arjuna* (Roxb.) Wight & Am., *Holarrhena pubescens* Wall. ex G.Don., *Thespesia populnea* (L.) Sol. ex Correa. and *Madhuca longifolia* (J.Konig) J.F.Macbr., are still breathing here.

Keywords: Conservation, biodiversity, Western ghat, traditional, Seed bed Burning.

Introduction

Most of the traditional as well as novel methodologies are known for the conservation of biodiversity. The conservation of plant diversity has received considerably less attention than the conservation of animals, perhaps because plants lack the popular appeal. As a result, plant conservation is greatly under resourced in comparison with animal conservation. Yet plants are much more important to us because plants provide food for us and our livestock, as well as a huge diversity of other products and services, from timber and fibers to clean water, clean air and erosion control. A Method identified here is a traditional method but unique and new to all. Raigad, Ratnagiri, Shindhudurg and Thane districts of Maharashtra state, India are rich in flora and fauna (Map.1.). These districts located between the foot hills of western ghat (UNESCO World Heritage Site) and nearby the Arabian Sea also known as Konkan region. As per location nationally as well as globally they have great importance. Main crop of this region is rice and farmers belong to these region use the traditional method for raising the rice seedlings. To avoid the weeds prior to seed sowing on seed bed they prefer seedbed burning method. Young growing branches of fully flooded with leaves of a plants such as *Terminalia elliptica*, *Terminalia paniculata*, *Terminalia arjuna*, *Holarrhena pubescens*, *Thespesia populnea* and *Madhuca longifolia* are mostly prefers by farmers for seed bed burning method. Therefore, every year for the cultivation of rice farmers rely on such plants and in first priority they can take the care of these plants properly. Hence unknowingly these plants where conserved from the last several years. Main aim of this survey is to highlight the main reason behind the protection of timber and medicinally important plants of this region.

Materials and Methods

The research was under taken in the tahsil of Mandangad, District of Ratnagiri, Maharashtra (India). In the first stage, all tahsils of Ratnagiri were visited to gather the knowledge about seed bed process from the farmers. In the second stage, tahsils of Raigad, Shindhudurg, Thane and Palghar districts were surveyed to collect more details from the farmers. After establishing a well rapport with farmers, discussion was organized with the farmer to know more about rice seed bed burning process. Information of method was gathered by administering a semi-structured questionnaire to 108 resource people (34 women and 74 men) and interviewing them about use of method.

Seed bed Burning Method:

Every year during late summer farmers start to collect the plant branches (Kaul) fully flooded with leaves of Plants such as *Terminalia elliptica*, *Terminalia paniculata*, *Terminalia arjuna*, *Holarrhena pubescens*, *Thespesia populnea* and *Madhuca longifolia* (Branches should be used after drying) as well as dried grass and dried leaves of other plants. Then before monsoon (10-15 days

earlier) they plough their entire rice field or and kept centre place reserved for seed bed (Tarva) Preparation. Approximate (3 X 10 ft., 2 X 8 ft., 10 X 15 ft.) size of area (seed bed size varies as per availability of area) uses for the seed bed preparation. First, a layer of dried cow dung spread over an area then a layer of dried branches (with leaves) of above mentioned plants, dried grass and leaves of other plants spread over it. After that, thin layer of soil and dried grass spread on it again and wait for few days. At the day of seed bed burning, early morning they can sprinkle slight water on bed and afternoon when sun is overhead they burn seed bed area. When 2-3days earlier of the rain start they can sow the rice seeds on the bed (Fig.1.).

Results and Discussion

On the basis of survey, the results revealed that timber and medicinally important plants such as *Terminalia elliptica*, *Terminalia paniculata*, *Terminalia arjuna*, *Holarrhena pubescens*, *Thespesia populnea* and *Madhuca longifolia* are mostly dominated in konkan. The Dominance of these plants occurs just by cause of a method used by farmers for raising the rice seedling. Among these Plants the genus *Terminalia* are the most widely used plants for traditional medicinal purposes worldwide. Many species of this genus are used for their antibacterial, antifungal, antiprotozoal, antiviral, antidiarrhoeal, analgesic, antimalarial, antioxidant, antiinflammatory and anticancer activities. Recently studies showed that many *Terminalia* species have multiple beneficial effects for multiple diseases and ailments (Cock I.E. 2015) and also used as good source for timber. *Holarrhena pubescens* is used as drug for Diarrhoea, piles, skin diseases and biliousness, arthritis (<http://www.flowersofindia.net>). Various parts of *Thespesia populnea* are found to possess useful medicinal properties, such as antifertility, antibacterial, anti-inflammatory, antioxidant, purgative and hepatoprotective activity (Vasudevan and Parle, 2006) and also as craftwood and ornamental (Friday J. and Okano D. <http://www.traditionaltree.org/>). The traditional uses of *Madhuca longifolia* and *Madhuca indica* flower are as tonic, cooling agent, aphrodisiac, astringent, demulcent (Akshata et al., 2013). Seed bed burning method is very popular among the farmers. As per observations and survey, long branches fully flooded with leaves required to rice seed bed burning process. To count the actual number of conserved plants is very difficult so record was prepared as per information collected from the farmers. The branches of approx.40 plants required there for one hector of rice field. As per geographical conditions and field under rice cultivation requirement of plants differ. In the rocky area growth of plants stunted so more number of plants required in this case while less number of plants required in soil rich area. Sacred groove is one of the well-known best plant conservation practice found in India (Khumbogmayum et al., 2004, Jayant S. 2012) but seed bed burning process is a

completely unfocused old traditional method unknowingly contributing in conservation of plants from the last several decades. Through this paper author first time reporting such type of study which further definitely helps in the process of plant conservation. However, if farmers of these areas started to use new modern technologies for raising the rice seedling, ultimately, they will be not depending on such plants and that independence become dangerous for plants. Billions of unknowingly conserved plants going to be sell-out for medicinal or timber purpose (Ramage et al., 2017). Such loss affects the local climate, habitat, soil erosion, gene pool and finally whole ecosystem of these regions. In India, from the last few decades some efforts taken to adapt diverse aspects of biodiversity but very little efforts have been made so far to study the traditional approach towards biodiversity and conservation of plants (Sensarma P. 2004).

Conclusion

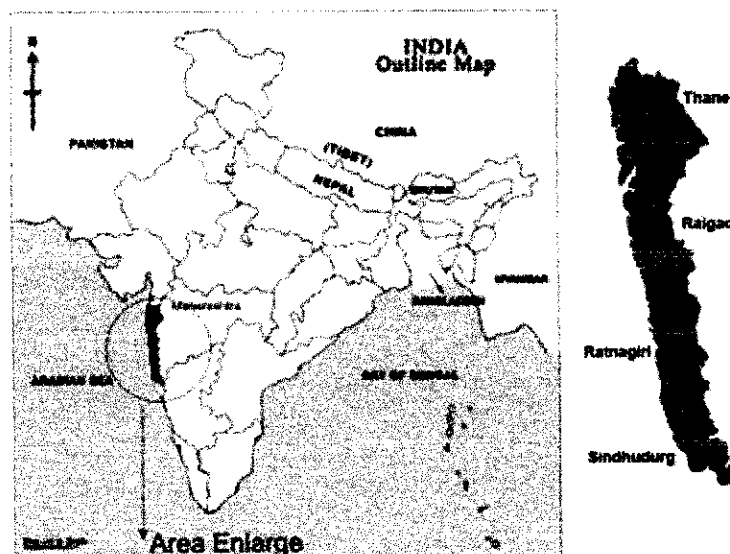
It has been concluded that, the farmers of these region have specific ecological knowledge. From the last several decades seed bed burning process is in practice. Every year Farmers of these regions taking the care of these plants for raising rice seedling but till today they also don't know unknowingly they were conserving that plants. Finally, through this article we appeal here to world society there is need to keenly observe such traditional practices those are contributing in the conservation of nature.

Acknowledgement

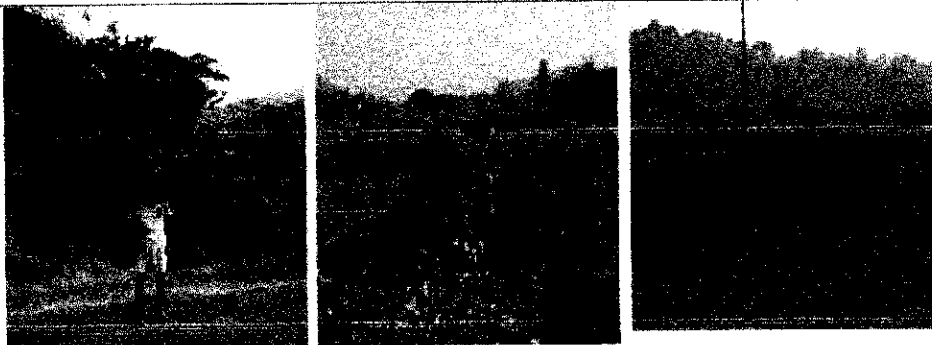
Authors are thankful to farmers of these regions for their inputs and conserving the plants. Author is also thankful to Dr. Bharatkumar Solapure, Graduate students and lab members of Botany department for their help during data collection.

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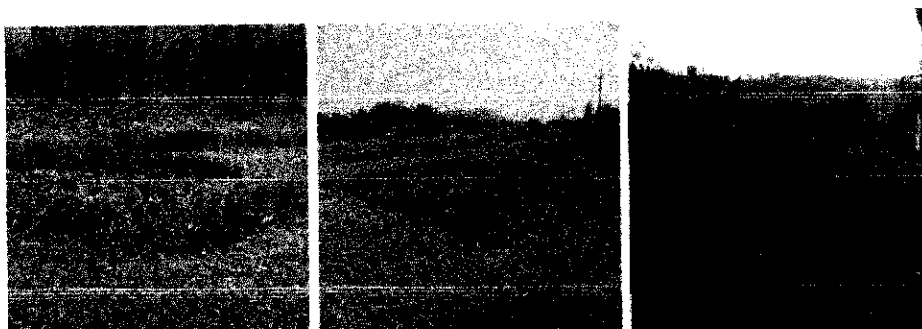
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Map.1. Location of Districts of foothills of western ghat, Maharashtra, India



A. Collection and storage of Young branches and leaves of plants



B. Seed Bed Prepared and seed bed burned area

Fig.1. Seed Bed Burning Method