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Exploration of Agroforestry species of Tirunelveli hills in Sivagiri, Tamilnadu

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Abstract

The aim of the present study was observation of agroforestry species of Sivagiri range, Tirunelveli hills, Tamilnadu period from 2015-2016. The study area of agriculture field of Sivagiri forest found in the plant species were observed and identified. The results of the field study were observed by a total of 58 plants species were identify in the agriculture fields. Study area of Sivagiri forest region identified by different locality observed by the more cultivated in the agriculture crops such as *Arachis hypogaea* L., *Allium cepa* L., *Capsicum annuum* L., *Carica papaya* L., *Cucumis sativus* L., *Ipomoea batatas* (L.), *Lycopersicon esculentum* Mill., *Manihot esculenta* Crantz., *Glycine max* (L.) Merr., *Pisonia grandis* R.Br., *Solanum nigrum* L., *Solanum melongena* L., *Vigna unguiculata* (L.) Walp., *Phaseolus vulgaris* L., *Mangifera indica*, *Musa paradisiaca* L., *Oryza sativa* L., *Saccharum officinarum* L., and *Coccus nuecifera* L., respectively. The conclusion of our results observed that the agroforestry species was protecting the soils and conservation of this area of Sivagiri forest in Tirunelveli hills.

Keywords: Agroforestry, Tirunelveli hills, Sivagiri, Agriculture

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1 INTRODUCTION

The forest region of India is under severe pressure for meeting growing demands for fuel, fodder, grazing, timber and non-timber forest products from an ever increasing human and livestock population and industrial demands. An approximately one fourth of the world's poor and ninety percentage of the poorest rely significantly on forests for their livelihoods [1]. Agroforestry is a collective term for land-use systems and practices in which woody perennials are deliberately integrated with crops and/or animals on the same land-management unit, either in a spatial mixture or a temporal sequence [2]. The trees species of agroforestry practices generally fulfil in the multiple purposes, involving the protection of soil or improvement of its fertility, as well as the production of one or more products [3]. Different types of agroforestry systems exist in different parts of the world.
Agroforestry helps to provide farmers with an effective and efficient land management system that would bring about high farm yields and revenue in a balanced ecological environment. The study area of Sivagiri Hills is northern most part of Tirunelveli hills and harbours a few notable endemic plants. The western slope falls in Kerala state. It has mainly a deciduous forest in its lower altitude and evergreen in the higher up, rising to 800m. The present study, was conducted in the exploration of plants in agriculture fields of Sivagiri forest, Tirunelveli Hills.

2 MATERIALS AND METHODS

2.1 Study Area

The exploration study of agroforestry species were regular field surveys conducted during the year 2015- 2016. All plants specimens were collected from the agroforest region of different locality of Sivagiri hills in Tirunelveli District, Tamilnadu. The scientific names of the agro plant specimens were updated according to the Plant List

(www.theplantlist.org). The nomenclatures of families are updated according to APG III system of classification [4,5]. All plants were identified and preserved by Herbarium.

3 RESULTS AND DISCUSSION

Agroforestry provide a superior contribution (91.44%) of the total income getting farmers per year in world wide. This contribution is obtained from agricultural crops, forestry (timber) and livestock previously observed by Qurniati et al.[6]. We observed the present study, various types of agricultural crops, plantations and forest trees were found in the Sivagiri forest. The study is observed was encountered in the 59 plants species identify in the agriculture fields (Table -1). Most of the regions were cultivated in the agriculture crops such as *Oryza sativa*, *Saccharum officinarum*, *Vigna mungo*, *Mangifera indica* and *Coccus nuecifera* (Table-1). Previous studies, agroforestry species studied by Dangwal et al. [7] observed that a total of 41 woody plants, which comprised of 29 trees and 12 shrubs species respectively. According to Rashid and Sharma (2012) reported that the exploration of economically important fodder plants of district Rajouri J&K regions [8]. Dwivedi et al. (2007) observed that the commercial tree species were identified viz., *Azadirachta indica, Acacia nilotica, Dalbergia sissoo* and *Eucalyptus* sp. *Populus deltoides* and *Eucalyptus* spp in agroforestry region [9]. The results of our study revealed that very thick area in agriculture field, which can be exploited as potential sites for agriculture crops and tree plantations. The conclusion of our results suggested that potential of agroforestry species was protect the soils and conservation of this area of Sivagiri forest in Tirunelveli hills.

Table-1: Agroforestry species of Sivagiri forest in Tirunelveli hills

Sl.No.	Species	Family	Uses
1.	*Azadirachta indica* Juss.	Meliaceae	Timber and medicinal
2.	*Melia azadirachta* L.	Meliaceae	Drenk Fodder, medicinal, fuel wood.
3.	*Saccharum officinarum* L.	Poaceae	Edible,bifuel
4.	*Bambusa bambos* L.	Poaceae	Medicine, paper pulp and panel products
5.	*Oryza sativa* L.	Poaceae	Foods and
6.	*Artocarpus heterophyllus* Lam.	Moraceae	Edible and woods
7.	*Ficus religiosa* Linn.	Moraceae	Religious and medicinal.
8.	*Morus alba* Linn.	Moraceae	Mulberry Fruit, basket.
9.	*Citrus aurantium* L.	Rutaceae	Edible and medicine
10.	*Aegle marmelos* (L.) Correa	Rutaceae	Medicinal values
11.	*Cocos nucifera* L.	Arecaceae	Edible and Woods, grafting materials
12.	*Arcca catechu* L.	Arecaceae	
13.	*Vigna mungo* (L.) Hepper	Fabaceae	pulses
14.	*Dalbergia sissoo* Roxb.	Fabaceae	Tali Timber, fuelwood, shade.
15.	*Indigofera aspalathoides* Vahl ex DC.	Fabaceae	Dyes and Medicine
16.	*Albizzia lebeck* L.	Fabaceae	Sreen Fodder, fuelwood
17.	*Butea monosperma* (Lam.)Taub.	Fabaceae	Plash Leaves as dinner plates
18.	*Bauhinia purpurea*	Fabaceae	Kalyad Mrdicinal.Food
19.	*Moringa oleifera*	Moringaceae	Vegetables in green leaves and drumstick
20.	*Mangifera indica* L.	Anacardiaceae	Fruits, timber, medicinal.
21.	*Anacardium occidental* L.	Anacardiaceae	fruits
22.	*Tectona grandis* L.	Lamiaceae	Teak Furniture, carving and boat building
23.	*Andrographis paniculata* (Burm.f) Wall, ex Nees	Acanthaceae	Medicine
24.	*Bacoba monnieri* (L.) Pennel	Scrophulariaceae	Food and Medicine
25.	*Calotropis gigantea* (L.) R.Br	Asclepiadaceae	Medicinal
26.	*Syzygium cumini* (L.) Skeels	Myrtaceae	Jamun Fruit and fodder
27.	*Eucalyptus citridora* Linn.	Myrtaceae	timber and fuelwood.
28.	*Psidium guajava* L.	Myrtaceae	Guava Fruit, and fodder
29.	*Salix acmophylla* Boiss.	Salicaceae	Beant Timber and fuelwood
30.	*Acacia nilotica*	Mimosaceae	Agricultural tool
31.	*Zizyphus maurtiana* Lam.	Rhamnaceae	Ber Fruit and fodder
32.	*Polyalthia longifolia* (Sonner.) Thw	Annonaceae	Medicine
33.	*Carina indica* L.	Cannaceae	Medicine
34.	*Ixora coccima* L.	Rubiaceae	Ornamental purposes
35.	*Aloe vera* (L.) Burm.f.	Liliaceae	Medicine
36.	*Centella asiatica* (L.) Urban	Apiaceae	Food and Medicine
37.	*Boerhavia diffusa* L.	Nyctaginaceae	Medicine

38.	*Momordica charantia* L.	Cucurbitaceae	Food and Medicine
39.	*Aristolochia bracteolata* Lam.	Aristolochiaceae	Medicine
40.	*Cassia alata* L.	Caesalpiniaceae	medicine
41.	*Biophytum sensitivum* (L.) DC.	Oxalidaceae	Medicine
42.	*Argemone mexicana* L.	Papaveraceae	medicinal
43.	*Carica papaya* L.	Caricaceae	fruits
44.	*Manihot esculenta* Crantz.,	Euphorbiacae	foods
45.	*Ipomoea batatas* (L.)	Convolvulaceae	foods
46.	*Arachis hypogaea* L.,	Fabaceae	Foods and oils
47.	*Glycine max* (L.) Merr.,	Fabaceae	foods
48.	*Capsicum annuum* L.,	Solanaceae	foods
49.	*Pisonia grandis* R.Br.,	Nyctaginaceae	foods
50.	*Allium cepa* L.	Amaryllidaceae	foods
51.	Solanum nigrum L.	Solanaceae	foods
52.	*Solanum melongena* L.,	Solanaceae	foods
53.	*Lycopersicon esculentum* Mill.,	Solanaceae	foods
54.	Vigna unguiculata (L.) Walp.,	Fabaceae	foods
55.	*Cucumis sativus* L.,	Cucurbitaceae	foods
56.	*Phaseolus vulgaris* L.,	Fabaceae	foods
57.	*Musa paradisiaca* L.,	Musaceae	foods
58.	*Zingiber officinale* L.	Zingiberaceae	foods

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