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Economic Utility of Plant Species Found in Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola, Maharashtra

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ABSTRACT

Keywords:

Campus, economic utility, flora, plants

The survey was undertaken in the campus of Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola with the objective to study the economic utility of plant species. Totally 89 plant species were studied, out of which 47 were recorded as fodder species, 54 medicinal and aromatic plants, 55 timber, 31 fuel wood, 32 edible plants, 26 gums and resins, 21 landscape and ornamental value, 24 tans and dyes, 10 insecticidal, 11 fibre and flosses, 4 Tantra and mantra and 3 species were recorded as bee flora.

INTRODUCTION

From time immemorial, the plants have shaped the life, economy and habitat of the people and perform number of functions including ecological, economical and recreational. It has been said rightly that plants can live in the absence of man but the existence of man without plants is beyond imagination.

Nature has blessed India with a great biodiversity. According to the World Conservation Monitoring Centre (WCMC) India's 3,28,263 sq.km. of land mass houses as many as 397 species of mammals, 1,232 of birds, 460 reptiles, 240 amphibians and more than 15000 flowering plants (Bhave et al. 2007).

Biological diversity is the variety and variability of plants, animals and micro-organisms on earth. Our planet's resources feed, provide shelter and housing, medicines and spiritual nourishment. The current decline in biodiversity is largely due to the result of human activity

and represents a serious threat to human development.

Forests are the chief resource for the collection and exploration of biological material. The past few decades have witnessed large scale deforestation in India due to substantial pressure generated by population growth demanding more land for agriculture, urbanization and industrial activities in addition to increased demand for fuel wood and timber. This has resulted in the loss of soil cover, habitat destruction, environmental degradation and ecological imbalance. This scenario has created a progressive awareness for the conservation and restoration of habitat and thus resulting in notifying many forest areas into protected zones, such as National Parks, Sanctuaries and Biosphere Reserves.

Maharashtra has been occupying a pivotal place in the country for its rich and varied biodiversity. The campus of Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola is having rich diversity with varied flora and fauna. The university campus has over a total 3425 hectares of land out of which the total intended area of the main campus is 1266.03 ha. The work on economic utility of the flora in this university has not been carried out in the past. Hence, an attempt has been made to survey and study the economic utility of the plant species present in Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola.

MATERIALS AND METHODS

Dr. Panjabrao Deshmukh Krishi Vidyapeeth (Agricultural University) is 5 km away from Akola railway station and the university occupying an area adjoining to Akola-Murtizapur state highway. Geographically, this university is situated at the latitude of 20° 42' North and longitude of 77° 02' East. Northern boundary is demarcated by the Mothi Umari, Guddhi village, east by Shivani airport and west by railway line. Whereas, on south, it is bounded by the staff quarters and The average annual rainfall is railway line. between 700 to 950 mm and on an average there are 53 rainy days in a year. The temperature rises rapidly after February till May, which is the hottest month of the year. In May the mean daily maximum temperature is 43.3°C and means daily minimum temperature is 29.5°C. The flora of the university mainly consists of tree species Azadirachta indica, Tectona grandis, Emblica officinalis, Dalbergia sissoo, Cassia fistula and Albizia lebbeck. Predominant shrubs are Carissa carandus, Lantana camara, Caesalpinia crista. Among grasses, Aristida funiculata, Dichanthium annulatum and Digitaria ciliaris are important part of the biodiversity in the campus.

Extensive field survey of the entire area was carried out in the university of Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola. The flora of the university were identified with the help of local people, staff members of the university, Department of Forestry and published books

namely Flora of Akola district (Kamble and Pradhan 1988), Forest flora of Melghat (Patel 1968), Additions to the flora of Melghat (Bhogaonkar and Devarkar 1999), The forest flora of Maharashtra state (Singh and Karthikeyan 2000 & 2001).

RESULT AND DISCUSSION

Economic utility of plant species found in the campus of Dr. Panjabrao Deshmukh Krishi Vidyapeeth was studied and appended in Table 1. Economic utility of plant species in respect of timber, fodder, fibre and flosses, tans and dyes, gums and resins, fuel wood, edible, ornamental landscape, medicinal and aromatic, bee flora, tantra and mantra and insecticidal property is given in the table.

All the species have been classified on the basis of their economic utility, of which 55 species are used for timber, 54 species has been categorized as medicinal and aromatic plants, 47 species are used as fodder, 31 for fuel wood; 32 species as edible plants, 26 species for gums and resins, 24 species for tans and dyes, 21 species for landscape and ornamental value; 11 species for fibre and flosses; 10 species as source of insecticide, 3 species as a source of pollen and nector for bee flora, 4 species for tantra and mantra (Table 2 and Fig.1.). The said work is in accordance with Chauhan (1995) on economically useful plant resources of Himachal Pradesh. Similar work was done by Chauhan (1984) in the wild medicinal plants of Pabbar valley of Himachal Pradesh. Uniyal and Rao (1993) explored the plant wealth of Rajaji National Sanctuary in Uttar Pradesh. Hande et al. (2014) undertaken the survey in the Katepurna wildlife sanctuary, Akola wildlife division, Maharashtra and recorded the economic utility of the plant species found in the wildlife sanctuary.

Table 1. Economic utility of plant species found in Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola.

Canada	There Is and	Doddon	Differen	Town	0	10.01	D.dillo	Contractor Contractor	The distant	Dog	Thomston	Two continued
Species	Innoer	roaaer	ripre	Ians	cams	ruei	Faible	Ornamental	Medicinal	pee	Ianta	Insecaciae
			and	and	and	poom		landscape	and	flora	and	
			Flosses	ghes	resins				aromatic		mantra	
Abrus precatorius Linn.			,	1			ı	+	+		+	+
Acacia catechu Willd.	+	+	•		+	+	+		+		+	
Acacia leucophloea Willd.		+	,	+	+	+	1	ı	+	•	ı	+
Acacia pennata Willd			•		+		+	ı	+		,	+
Acacia nilotica (Linn.)	+	+	•		+	+		ı	•		•	,
Achyranthes aspera L.		+						+	+		•	
Adhatoda vasica L.							,		+		•	
Adina cordifolia Roxb.	+		+	+			1	ı	ı		•	
Adansonia digitata L.	+		+	+			+	ı	+			
Aegle marmelos (L.) Corr. Serr	+		•	+	+	+		+	+		•	
Albizia lebbeck Benth.(L.)	+	+	1	+	+	+		+	+	+		
Alstonia scholaris L.								ı	+			
Anogeissus latifolia Roxb.	+	+	•	+	+	+	+	ı	+	•	•	
Artocarpus heterophyllus Lam.	+	+	•	+			+		+			
Aristida funiculata Trin.		+	•					ı				,
Aristida redacta Stapf.		+	,	1	,	,		ı		,	,	
Ailanthus excelsa Roxb.	+	+						ı				•
Azadirachta indica A.Juss	+	+	•		+	+	+	+	+	+	+	+
Balanites aegyptiaca (L.) Delle	+		•		+	+		ı	+	•		
Bauhinia racemosa Lam.	+	+	+		+	+	+		+			,
Bauhinia variaata (L.) Benth	+	+	+			+	+		+	,		,

Buchanania lanzan Spreng.	+	+			+	+	+		+			
Butea monosperma Lam.	•	•		+	•			+	+			
Cordia myxa Linn.	+	+		•	+	+	+		•	,		
Carissa carandas L.	,			,	,		+	+	+			
Caesalpinia coriaria (Jacq.)Wild.	•	+		•	1	+			•	,		
Caesalpinia crista L.	,				•				+			
Cassia tora L.	,	,		,	,			ı	+	,		
Cassia fistula Linn.	+					+	+	•	+			
Casuarina equisetifolia L.	+			+		+		•	+			
Ceiba pentandra (L.) Garertn.	+	+	+	+	•			ı	+			
Cuscuta reflexa L.	,			+					+			
Dalbergia sisoo Roxb.	+	+		,	ı	+		ı	ı	,		
Dalbargia latifolia Roxb.	+					+		•	•	,		
Dendrocalamus strictus (Roxb.)	,	•		•	•	i		1	+	,		
Delonix regia (Hook)	+			,	+	i		+	•	,		
Dichanthium annulatum (Forssk.)	,	+		,	1	ı		+		,		
Stapf												
Digitaria ciliaris (Retz.) Koeler	,	+		,		•			+	,		
Diospyros melanoxylon Roxb.	+	+		+	•	+	+	1	•	,		
Emblica officinalis Linn.	+	+		+	•	+	+	+	+	,		_
Erythrina variegata L.	+	+	+	1	,	,		1	•	,		
Eucalyptus tereticornis Sm.	+	,		,	+	+		1	+	,		
Limonia elephantum L.	+	,		+	+	,	+	+	•	,		
Ficus benghalensis Linn.	+			,	+	+		1	+	,		
Ficus glomerata Roxb.	+	•		•	+	+		1	+	,		
Ficus religiosa Forssk.	+	1		1	+		i	+	+		1	

Gardenia lucida J.Ellis	+	+		+	+	+	+	1	+			
Gliricidia maculata (Jacq.)Kunth.	+	+	•	1	1	+			•	•	•	+
Gmelina arborea Roxb.	+	+	,	•	,	+	+	ı				
Hardwickia binata Roxb.	+	+	+	,	,	+				,		
Heteropogon contortus L.		+		•	,					•		
Holarrhena antidysenterica Linn.		+		•	•		+	+	+	•		
Holoptelea integrifolia (Roxb.)	+	,		ì	1	ı	+		ı	1	ı	
Planch												
Jatropha curcas L.		+		ı	,		+		,	,		,
Lantana camara.L.		,		ı	•	+		+	+	•	•	
Leucaena leucocephala Lam.	+	+	•		,	+		ı				
Madhuca indica Gmel.	+	+		,	,	+	+		,	,	,	
Mangifera indica Linn.	+	1	•		1					•		•
Melia azedarach Linn.	+	,		•	,				+	•	•	•
Mimusops hexandra Roxb.		,		•	•		+		+	•	,	•
Moringa oleifera Lam.	+	+		1	1	ı	+		+	•	,	ı
Mitragyna parvifolia Roxb.	+	+	+	+	ı					•	•	,
Nyctanthes arbortristis L.		,		+	+	+	+		+	•	•	
Ocinum basilicum L.				i	•				+	+	+	
Ougeinia dalbergioides Benth.	+	+	+	i	+	ı			ı		•	,
Paspahum scrobiculatum L.		+	,	ı	,			ı			,	,
Prosopis juliflora (Swartz) DC.	+	+		1	1	+				•	,	•
Pongamia pinnata Pierre.	+	+	•	ı	+				+	•		•
Pterocarpus marsupium Roxb.	+	+	•	ı	+	+			+			•
Phoenix acaulis Buch.		•	,	ı	,		+	•	+		•	•
Santalum album Linn.		,	+	1			+		+			

Sapindus laurifolius L.	+							+				+
Samanea saman (Jacq). Merr.	+	+	+	,	,	+				,	1	
Schleichera oleosa (Lour.)	+	+	•	+								
Semecarpus anacardium L.f.	•	,	,	+	+				+	,		+
Simarouba glauca DC.		•	•						+			
Soymida febrifuga Roxb.	+	+	•		+	+						
Syzygium cumini (L.) Skeels.	+	+		+		+	_	+	+			
Tamarindus indica Linn.	+	+	,				_					
Tectona grandis L.F.	+	•	•			+						
Terminalia arjuna Roxb.	+	•		+		+		+				
Terminalia bellirica Roxb.	+	+	•	+	+	+	_		+			
Terminalia catappa L.	+		•	+	,	+	_	+	+			+
Terminalia chebula Retz.	+	•	•	+		+	_	+				
Thevetia peruviana (Pers.)		•	•					+	+			
K.Schum												
Tinospora cordifolia (Thunb.) Miers	•	,	,						+			
Vitex negundo L.		•	•			+			+			+
Xanthium strumarium L.		+		•					+			
Ziziphus mauritiana Lam.	,	+	,		,	+	_	+	+			1

+ used - not used)

Utilization of species	Number of species
Timber	5
Fodder	47
Fibre and flosses	11
Tans and dyes	24
Gums and resins	26
Fuel wood	31
Edible	3
Ornamental landscape	21
Medicinal and aromatic plants	5
Bee flora	3
Tantra and mantra	4
Insecticide	10

Table 2. Number of species and their utilization.

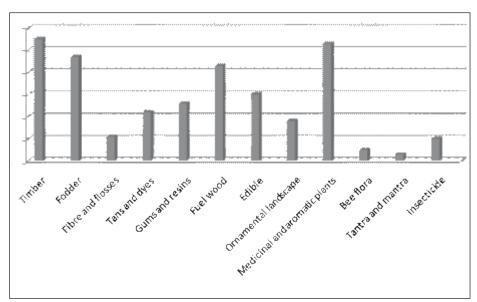


Fig. 1. Economic utility of plant species

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