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**BIODIVERSITY OF ECONOMICALLY IMPORTANT TREES OF PATAN  
DISTRICT (NORTH GUJARAT)**

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**ABSTRACT:**

A study was conducted for the taxonomic and systematic survey for the biodiversity of plants of Patan District (North Gujarat). The present paper enumerates different kinds of tree species present in seven different talukas of Patan district and its adjacent areas having some economic value. Results showed that all most all the species are economically important in one or another way like food, timber, fibers, medicines, dye, oil and gum yielding etc. District has divers types of tree species belonging to nearly 25 different families which included many native and exotic species. Some tree species (*Neem*, *Acacia* and *Prosopis* etc.) frequently distributed where as some are very few (*Tamarix*, *Beheda* etc). In spite of semi-arid, dry climate, the district has rich biodiversity of tree species.

**KEY WORDS:** *Biodiversity, Economy, Trees, Patan.*

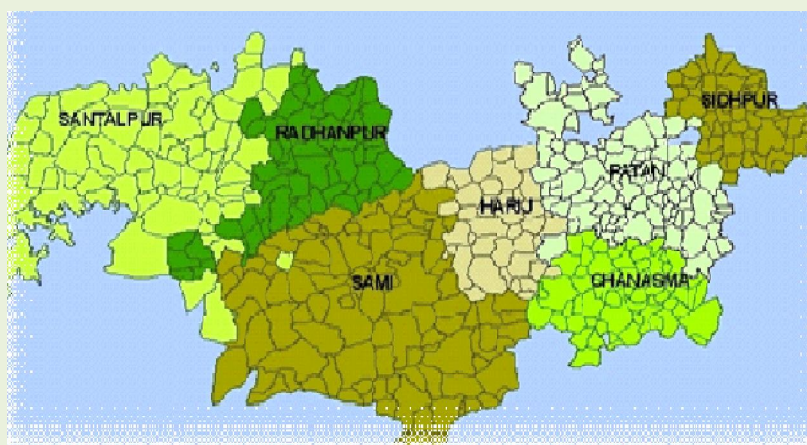
**INTRODUCTION:**

Trees are important to mankind not only economically, environmentally and industrially but also spiritually, historically and aesthetically as they sustain human life through direct and indirect gains by providing a wide range of products for survival and prosperity. Trees represent one of the important components of each and every terrestrial ecosystem and are a part of nature's precious gifts. Some are deciduous; others are evergreen. Some have beautiful flowers; others have beautiful fruits or foliage. Some are scented; others are ugly but economically very important. The welfare of mankind is affected not only by their density and diversity but also by their direct and indirect values, which are beyond estimation (Seth, 2004). The Patan district of the Gujarat state is in the semi arid and arid zone of the country. This area supports natural semi desert to desert ecosystems with naturally less forest cover, which are largely intact and where native species and communities associated with these ecosystems are still not well represented. This is also an area with a high diversity of locally endemic species of flora which are not found or are rarely found outside the area. Survey was conducted mainly for the biodiversity of trees as the biotic resources, which are

the good indicator of any change in Environmental condition (Denis, 2003). As the area having less industrial development and majority people are dependent on agricultural practices it becomes so much important of having variety of wild as well as cultivated plant species, which helps to increase the economy of the area. The work may be helpful not only in listing of economically important trees but also give status and multiple purpose/uses of each type which will help us in further multiplication/plantation/cultivation of certain tree species in the various areas for obtaining their economical values.

#### STUDY AREA:

Patan is situated in the Northern part of Gujarat on the bank of Saraswati River. It is bound on the North West and North by Rann of Kutch and Banaskantha district. Patan district lies between 23° 41' and 23° 55' North latitude and 71° 31' and 72° 20' East longitude. Patan is situated on 82.30 meters height from the sea level in the Northern part of Gujarat. The region is having the minimum temperature as low as 5°C to 10°C and maximum temperature as high as 40°C to 48°C. The average rain fall in the region is about 701 mm(Patel, 2011). The area cover semi arid and arid zone of the country natural semi desert to desert ecosystems with naturally less forest cover in it seven different Talukas where the survey was conducted (Fig.1).



**Fig.1-Map of Patan District**

#### METHODOLOGY:

The seasonal study was conducted in all Talukas of Patan district during 2011 and observations were made on random bases. Tree species were observed, identified with the help of flora book and classified and listed with economical values (Prajapati *et. al.*, 2005). The collected plant samples were dried with customary method which was mounted on herbarium sheet and label. Each plant has been enumerated on the basis of classification of Bentham and Hooker system. Data of tree species with different economical important, on leading families, native/exotic species, wild/cultivated species were recorded.

## RESULTS AND DISCUSSION:

During the survey for the biodiversity of economically important trees 51 angiosperm tree species were recorded including nearly 46 genus and 27 families (table-1). Talukas wise distribution of Families in Patan district was recorded (fig.2). The few leading families are Fabaceae, Mimosaceae and Caesalpiniaceae. Fig.3 represented % of Tree Species with Different Economical values here the Medicinal are 33%, Timber 19%, Food 13%, Fodder 12%, Oil 9%, and Dye 14%. Fig.4 represented 69% of Native and 31% of Exotic Tree Species in Patan District where as fig.5 shows 67% of Wild and 33% of Cultivated Tree Species in Patan District. In spite of the arid climate the Patan has rich biodiversity of trees. Native plant species are very high in the district, plant diversity enriches from arid zone to urban areas of the district and trees species distribution shows many economically important type of trees in this semi arid to desert type of area.

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**Table 1:- List of Trees with Economical Importance in Patan**

Sr. No.	Name of Trees	Family	N/E	W/C	No. of Taluka	Economical Importance
1.	<i>Acacia catechu</i> L.F.Willd	Mimosaceae	N	W	6	Medicinal, Timber, Fodder, Dye
2.	<i>Acacia nilotica</i> L.	Fabaceae	N	W	7	Medicinal, Timber, Dye
3.	<i>Adansonia digitata</i> L.	Bombacaceae	E	W	7	Medicinal, Timber, Fodder
4.	<i>Aegle</i>	Rutaceae	N	C	4	Medicinal, Oil, Dye

	<i>marmelous</i> corr.					
5.	<i>Ailanthus excelsa</i> Roxb.	Simaroubaceae	N	C	4	Medicinal, Timber
6.	<i>Albizia lebbek</i> L.	Mimosaceae	E	W	4	Medicinal, Timber
7.	<i>Alstonia scholaris</i> L.	Apocynaceae	N	W	3	Medicinal, Timber
8.	<i>Annona squamosa</i> L.	Anonaceae	N	C	5	Medicinal, Food, Oil,Dye
9.	<i>Anthocephalus cadamba</i> Mig.	Rubiaceae	E	W	6	Medicinal, Timber, Dye
10.	<i>Azadirachta indica</i> A.	Meliaceae	N	W	7	Medicinal, Timber, Oil, Dye
11.	<i>Caesalpinia pulcherima</i> L.	Caesalpiniaceae	N	W	4	Medicinal
12.	<i>Callistemon coccineas</i> D.C.	Myrtaceae	E	C	4	Fodder, Oil
13.	<i>Carica papaya</i> L.	Caricaceae	N	C	3	Medicinal, Food, Fodder
14.	<i>Cassia fistula</i> L.	Caesalpiniaceae	N	C	2	Medicinal, Timber, Food, Dye
15.	<i>Casuarina equisetifolia</i> Forst.	Casuarinaceae	E	C	3	Medicinal, Timber, Dye
16.	<i>Cordia rothi</i> L.	Boraginaceae	N	W	3	Medicinal, Food, Fodder, Dye
17.	<i>Citrus limon</i> L.	Rutaceae	N	C	6	Medicinal, Food,
18.	<i>Dalbergia sisso</i> Roxb.	Fabaceae	N	W	7	Timber
19.	<i>Delonix regia</i> L.	Caesalpiniaceae	E	W	4	Medicinal
20.	<i>Embelica officinalis</i> Linn	Euphorbiaceae	N	W	5	Medicinal, Timber, Food, Fodder, Oil, Dye
21.	<i>Eucalyptus globulus</i> Linn.	Myrtaceae	E	W	5	Medicinal, Timber, Oil, Dye
22.	<i>Eugenia jambolana</i> Lamk.	Myrtaceae	N	C	3	Medicinal, Food, Fodder, Dye
23.	<i>Feronia elephantum</i> Correa	Rutaceae	N	W	3	Medicinal, Timber, Food, Fodder, Dye
24.	<i>Ficus benghalensis</i> Linn.	Moraceae	N	W	6	Medicinal, Dye
25.	<i>Ficus religiosa</i> L.	Moraceae	N	W	6	Medicinal, Dye
26.	<i>Holoptelea integrifolia</i> roxb.	Ulmaceae	N	W	4	Medicinal

27.	<i>Madhuca indica</i> Macbide	Sapotaceae	N	C	1	Medicinal, Timber, Food, Fodder, Oil, Dye
28.	<i>Mangifera indica</i> L.	Anacardiaceae	N	C	2	Medicinal, Timber, Food
29.	<i>Manilkara hexandra</i> (Roxb.)	Sapotaceae	N	C	4	Medicinal, Food, Fodder
30.	<i>Melia azadirach</i> Linn.	Meliaceae	N	W	4	Medicinal, Timber, Oil, Dye
31.	<i>Mimusops elengi</i> L.	Sapotaceae	E	W	3	Medicinal, Timber
32.	<i>Moringa olifera</i> Lamk.	Moringaceae	N	C	4	Medicinal, Timber, Food, Oil, Dye
33.	<i>Morus alba</i> L.	Moraceae	E	W	3	Medicinal, Food
34.	<i>Murraya koenigii</i> Spreng	Rutaceae	N	C	5	Medicinal, Food,
35.	<i>Parkinsonia aculeata</i> Linn.	Caesalpiniaceae	E	W	3	Medicinal, Timber
36.	<i>Phonix sylvestris</i> Roxb.	Palmaceae	N	C	6	Medicinal, Timber, Food, Fodder, Oil
37.	<i>Pithecellobium dulce</i> Roxb.	Fabaceae	E	W	4	Medicinal, Food, Fodder
38.	<i>Polyalthia longifolia</i> L.	Anonaceae	N	W	4	Medicinal, Timber
39.	<i>Pongamia glabra</i> Vent.	Fabaceae	N	W	6	Medicinal, Timber
40.	<i>sProsopis cineraria</i> Linn.	Fabaceae	E	W	6	Medicinal, Timber
41.	<i>Prosopis julifera</i> D.C.	Fabaceae	E	W	7	Medicinal, Timber, Fodder
42.	<i>Psidium guvava</i> L.	Myrtaceae	N	W	6	Medicinal, Timber, Food, Fodder
43.	<i>Salvadora oleoidea</i> Jacq.	Salvadoraceae	N	W	4	Medicinal
44.	<i>Salvadora persica</i> Linn.	Salvadoraceae	N	W	7	Medicinal, Fodder
45.	<i>Samanea saman</i> Jacq.	Fabaceae	E	W	1	Medicinal, Timber
46.	<i>Sapindus trifoliatus</i> L.	Sapindaceae	E	C	2	Medicinal, Oil, Dye
47.	<i>Tamarindus indica</i> Linn.	Fabaceae	E	W	6	Medicinal, Timber, Food, Fodder
48.	<i>Tamarix dioica</i> Roxb.	Tamaricaceae	N	W	1	Medicinal
49.	<i>Terminalia</i>	Combretaceae	N	W	6	Medicinal, Oil

	<i>arjuna</i> Bedd.					
50.	<i>Terminalia cattappa</i> Linn.	Combretaceae	N	C	5	Medicinal,Food,Fodder, Oil
51.	<i>Zizyphus mauritiana</i> Lamk.	Rhamnaceae	N	W	5	Medicinal,Food,Fodder

N.B - N=Native, E= Exotic, W=Wild, C=Cultivated.

Fig. : 2 – Talukas wise distribution of Families in Patan

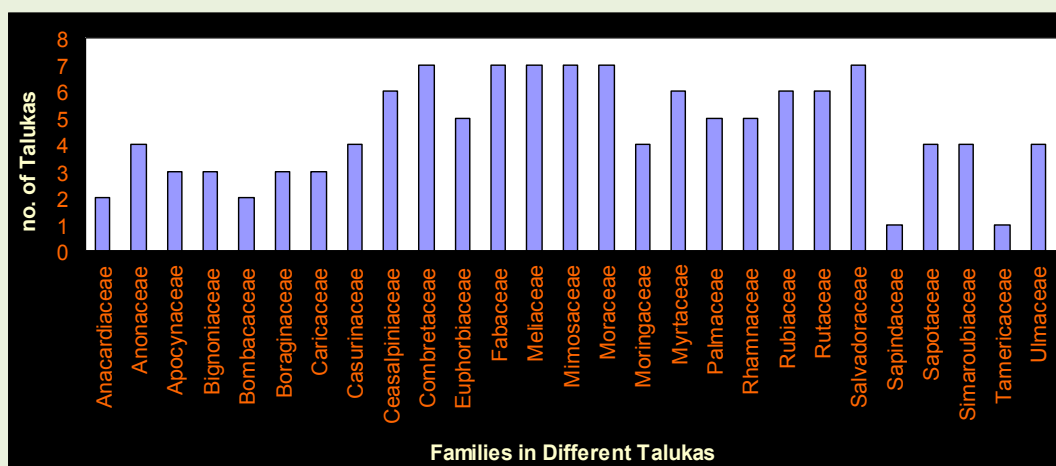


Fig. - 3- % of Tree Species with Different Economical values

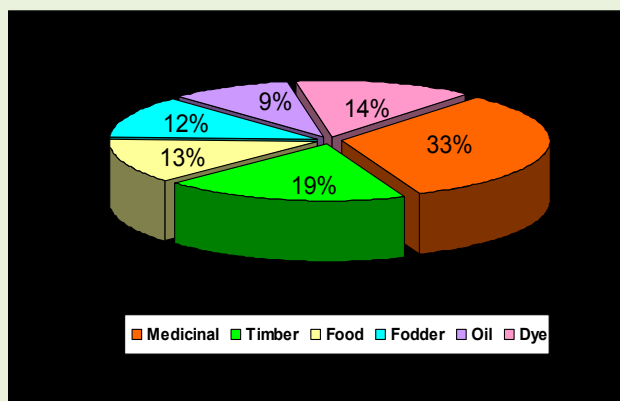
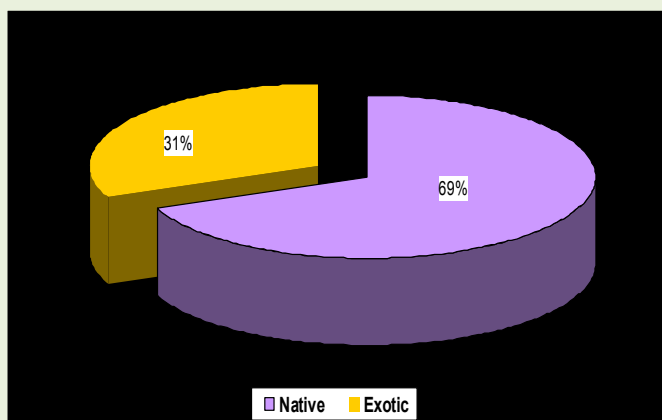


Fig. - 4 - % of Native & Exotic Tree Species in Patan District



**Fig. - 5 - % of Wild & Cultivated Tree Species in Patan District**

