

FLORA OF MEHSANA DISTRICT, NORTH GUJARAT

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ABSTRACT

The present study envisages an account of vegetation and floral composition of phytodiversity of Mehasana district, Gujarat. It comprises 487 species of angiosperms, belonging to 287 genera under 86 families and two species of pteridophytes.

INTRODUCTION

The Mehsana district founded between 12th to 14th century by the Chavada Rajputs, got its name from the town of Mehasna, it is one of the districts forming part of the northern region of the Gujarat State, between 23° 67' to 24° 51' N latitudes and 71° 67' to 72° 51' E longitudes. It is bordered by Banaskantha district in the North, by Patan and Surendranagar districts in the West and in the South by Ahmedabad and Gandhinagar districts. The river Sabarmati skirts the eastern boundary and serves as a natural boundary line between the district of Mehsana and Sabarkantha.

The district has undergone several territorial changes due to transfer of areas to the adjacent districts or formation of new districts (Gandhinagar district in 1964 & Patan district in 2000). Presently the district comprises nine talukas namely Kadi, Kheralu, Becharaji, Mehsana, Vadnagar, Vijapur, Unja and Visnagar, with over 600 villages, having an area of over 4,500 sq km. According to 2001 census, the district has a population of 1,837,892, of which c. 22.40% is urban.

Mehsana district is one of the major oil and gas-producing districts of the country. About 70 per cent of the total working population of the district is engaged in agriculture. The main crops are *Bajra*, *Jowar*, *Cotton* and *Oilseeds*. "Dudh Sagar" Co-operative milk dairy of Mehsana is also one of the highest milk producing areas in India, with Asia's second largest dairy. It has a big iron and steel market and has a big trading center for *Oilseed*, *Jira* (Cumin), *Isabgul* (Phyllium), and *Anise*.

The famous Sun temple and other Jain temples at Modhera are just c. 55 km from Mehsana town. Modhera's Sun temple is over 900 years old and is good example of India's temple architecture. Thol Bird Sanctuary with an area of c. 7 sq km located in the south towards Ahmedabad, which is a home of the variety of wild fowl, flamingos, gray pelicans, black ibis and other wetland birds.

PHYSIOGRAPHY

The Mehsana district is situated in the lowland between the Aravalli Range and the Little Rann of Kutch. It consists of one uninterrupted plain sloping from north- east to south- east. However, the eastern parts of Kheralu taluka are uneven and rich in vegetation. The western parts of the district become very monotonous.

The characteristic redeeming features, diverging with the general flat surface of the various parts of the district, are hillocks and ridges of blown sandy loam. These blown loamy hills are scattered widely over the plains of the district having scattered scrub forests. The only hill range is of Taranga hill, situated in the Kheralu taluka, with an altitude of 365.76 m above m.s.l.

Rivers Sabarmati, Rupen and its tributaries drain the entire area. Sabarmati river is the only perennial river; it rises in the eastern boundary of the district from Aravalli hills and flows through Kheralu and Vijapur talukas and enters the Gandhinagar district. The Rupen rises from the western side of Taranga hill in Kheralu taluka; it flows through Kheralu, Visnagar and Mehsana talukas and then disappears in to little Rann of Kutch. These rivers are fed by rain water and are shallow.

GEOLOGY

Mehsana district is mainly covered with recent formation. At very few places, rocks are exposed and they are grouped into Idar granites, Himmatnagar series and laterities. The north- east portion of the district consists of porphyritic granites to fine- grained. The exposed rocks of Himmatnagar series consist mainly of sandstones, shale and conglomerates. The district is mostly covered by thick alluvium, having gray brown soil.

The Precambrian rocks of the northeastern corner of the district are metamorphosed impure calcareous sediments, which form calc-gneisses, meta-morphosed and granitised arenaceous sediments, ultimately resulting in the formation of para-gneisses, basic intrusives and granites. The other hills are of grained porphyritic granite.

CLIMATE

A hot summer and general dryness characterize the climate of the district in the major parts of the year. The hot season is from March to the middle of June. The mean daily maximum temperature in May is about 45° C and mean minimum is about 26° C. June is the hottest month when the day temperature reaches upto 47° C. Summer is generally dry with the relative humidity less than 30 %. Nights during June are comparatively hotter than May. May and the early part of June before the onset of the south- west monsoon constitute the hottest part of the year. The district experiences dust storms during summer season occasionally.

South- west monsoon, which starts late June, continues upto about the end of September. On an average, there are 30 rainy days in a year. Average annual rainfall is about 613 mm. October and November constitute the post monsoon or transition period. During monsoon, depression from the Bay of Bengal affects the weather over the district, occasionally causing wide spread heavy rains and gusty winds. Thunderstorms, occasionally accompanied with squalls, occur during the latter half of the summer and the early part of the monsoon season. During monsoon season, the relative humidity is highest being above 70 per cent.

The Cold season is from December to February. After February, there is a rapid increase in the temperature. January is the coldest month with mean daily maximum temperature about 35° C and the mean daily minimum about 15° C. During the cold season, in association with passing western disturbances, cold waves affect the district and the minimum temperature drops down to about freezing point.

FORESTS

Mehsana district does not have rich forests. The forests are scattered over the eastern and northwestern boundaries of the district. The poor shallow soil usually prevents the growth of forest in the district. Further, indiscriminate cutting of forest trees by local people for fuel and other purposes, continuous operation of biotic factors, considerable destruction because of grazing and hacking also affect the growth of forests. Before formation of Patan district, the total forest area of the district (as on December 1971) was 116.78 sq km, which is now reduced to 71.75 sq km in 2003.

The Aravalli hill range of Taranga hills are monotonous and devoid of luxuriant forest cover. In Vijapur and Kheralu talukas, the forest is dispersed in villages. The soil is poor and shallow and has a tendency to erode by wind and water, resulting big ravines and *Kotars*. The tree growth found mainly along the *nalas* and *Kotars*.

VEGETATION

Aravalli hill range spreads in the district from Dharoi to Kheralu. The hills are low in the form of hillocks in most of the places, except at Kheralu taluka where Taranga hill range reaches at one or two places at about 365 m height. The vegetation of Taranmata Reserve forest and Taranga hill is dry deciduous type. The growth and diversity of tree species is very poor. The common tree species found from middle to top of hills are: *Acacia chundra*, *A. senegal*, *Anogeissus pendula*, *A. latifolia*, *Bauhinia racemosa*, *Boswellia serrata*, *Cassia fistula*, *Ehretia laevis*, *Diospyros montana* var. *cordifolia*, *Ficus arnottiana*, *F. benghalensis*, *Lannea coromandelica*, *Limonia acidissima*, *Manilkara hexandra*, *Miliusa tomentosa*, *Spondias pinnata*, *Sterculia urens*, *Tamarindus indica*, *Wrightia pubescens*, *Ziziphus xylopyrus* etc. *Butea monosperma* is quite common along the slopes and *Nalas* where moisture is retained for few months. The vegetation along foot of hills is sparse and scrub type, the common tree species are *Diospyros montana* var. *cordifolia*, *Holarrhena pubescens* and *Wrightia tinctoria*, in association with *Acacia senegal*, *Bauhinia racemosa*, *Cassia fistula*, *Maytenus senegalensis* and *Ziziphus mauritiana* var. *pubescens* etc. The common shrubs on hills and foot of hills are : *Adhatoda zeylanica*, *Caesalpinia bonduc*, *Capparis sepiaria*, *C. grandis*, *Clerodendrum phlomoides*, *Datura fastuosa*, *Dichrostachys cinerea* var. *indica*, *Gardenia resinifera*, *Grewia tenax*, *G. damine*, *Helicteres isora*, *Hibiscus micranthus*, *Phyllanthus reticulatus*, *Leptadenia pyrotechnica*, *Lantana salvifolia*, *Nyctanthes arbor-tristis*, *Prosopis cineraria*, *Senna auriculata*, *Spermadictyon suaveolens*, *Ziziphus nummularia*, etc. *Abrus pulchellus*, *Ampelocissus latifolia*, *Asparagus racemosus*, *Cardiospermum halicacabum*, *Cayratia trifolia*, *Cissus repanda*, *Coccinia grandis*, *Cocculus hirsutus*, *Merremia aegyptia*, *Momordica balsamina*, *Mukia maderaspatana*, *Leptadenia reticulata* and *Telosma pallida* are the common twining or climbing herbs/shrubs in these forests. Twining species of white-flowered *Dendrophthoe falcata* is the only parasite noted in the forest.

The ground flora of these forests is represented by: *Acalypha ciliata*, *Anisochilus carnosus*, *Barleria prionitis*, *Bidens biternata*, *Boerhavia repens*, *B. erecta*, *B. procumbens*, *Caesalpinia decapetala*, *Celosia argentea*, *Chamaecrista pumila*, *Commelina erecta*, *Crotalaria burhia*, *C. hebecarpa*, *C. linifolia*, *Curcuma inodora*, *Chlorophytum tuberosum*, *Corchorus aestuans*, *C. olitorius*, *Desmodium procumbens*, *Glossocardia bosvallea*, *Hedyotis corymbosa*, *Indigofera cordifolia*, *I. linnaei*, *I. tinctoria*, *Lepidagathis bandraensis*, *Leucas cephalotes*, *Lindernia ciliata*, *Lindernia crustacea*, *Ocimum americanum*, *Oxalis corniculata*, *Peplidium maritimum*, *Pavonia zeylanica*, *Pedaliium murex*, *Physalis micrantha*, *Pogostemon benghalensis*, *Polygala chinensis*, *Sclerocarpus africanus*, *Sericostomma pauciflora*, *Spermacoce articularis*, *S. pusilla*, *Striga angustifolia*, *Tephrosia purpurea*, *T. senticosa*, *Trichosanthes cucumerina*, *Tridax procumbens*, *Senna tora*, *Vernonia cinerascens*, *Vigna aconitifolia*, *Zornia gibbosa*, etc. The common sedges and grasses are : *Cyperus alulatus*, *Cyperus compressus*, *Apluda mutica*, *Arthraxon lancifolius*, *Enteropogon dolichostachyas*, *Cymbopogon jwarancusa*, *Dichanthium annulatum*, *Eragrostis amabilis*, *Heteropogon contort,s* etc. Fern species *Actinopteris radiatus* and *Adiantum lunulatum* are quite common in moist places of these forests.

River beds supports a very poor vegetation and some of the typical common plant species are: *Alhagi maurorum*, *Eclipta prostrata*, *Eragrostis ciliaris*, *Heliotropium marifolium* var. *wallichii*, *Indigofera cordifolia*, *Lantana salvifolia*, *Lindenbergia indica*, etc.

AQUATIC AND MARSHY VEGETATION

There is no natural lake in Mehsana, although the entire district is drained by a number of seasonal rivers and its tributaries. Temporary ponds, tanks etc., present in the district, are used for irrigation and drinking purposes and dried up in absence of rainwater during summer. The Dharoi dam is the only permanent water source. It is one of the biggest dams of north Gujarat, built over Sabarmati River and used for irregation

and drinking purposes. Therefore, in absence of permanent water bodies the aquatic vegetation is very poor and presents only few free-floating species i.e. *Eichhornia crassipes*, *Ipomoea aquatica*, *Nymphaea pubescens*, *N. nouchali*, *Potamogeton crispus*, *P. nodosus*, *Potamogeton perfoliatus* and *Spirodela polyrrhiza* etc. The submerged species are *Hydrilla verticillata*, *Najas indica*, *Vallisneria spiralis* var. *denseserrulata* and *Nechamandra alternifolia*, etc. *Ammannia baccifera*, *Bacopa monnieri*, *Bergia ammannioides*, *Caesulia axillaris* and *Cyperus* spp., *Fimbristylis* spp., *Hygrophylla schulli*, *Limnophila indica*, *Limnophyton obtusifolia*, *Monochoria vaginalis*, *Oxalis corniculata*, *Polygonum plebeium*, *Sagittaria trifolia*, *Sphaeranthus indicus*, *Typha domingensis* are some common species found in marshy habitats.

THOL BIRD SANCTUARY

In 1912, an earthen bank was built at Thol near Kadi to retain rainwater and prevent flooding by Maharaja Gaekwad of Baroda. In 1988 Gujarat Government declared this water body, which functions as an irrigation reservoir as a Thol Bird Sanctuary under section 18 of the Wildlife Protection Act 1972.

Thol Bird Sanctuary, spread over an area of 6.99 sq km, is an important wetland of the country and declared as an Important Bird Area (IBA) by Bombay Natural History Society. The area supports more than 150 species of Birds, 8 species of reptiles and 11 species of mammals.

Botanically the area is not rich, but it is a haven for migratory birds from Eastern Europe, Siberia and Central Asia to the Himalayas. Small islands and periphery of the area is dominant by tree species of *Prosopis juliflora*, *Acacia nilotica* subsp. *indica* and *Azadirachta indica*, which play an important role to provide shelter and suitable place for nesting. The other common species recorded are: *Abutilon pannosum*, *Alysicarpus monilifer* var. *venosa*, *Blumea obliqua*, *Calotropis procera*, *Chloris barbata*, *Coldenia procumbens*, *Corchorus fascicularis*, *Crotalaria burhia*, *Cynodon dactylon*, *Cyperus compressus*, *C. michelianus* subsp. *pygmaeus*, *C. rotundus* var. *centiflorus*, *Desmostachya bipinnata*, *Dichrostachys cinerea* var. *indica*, *Digera muricata*, *Echinochloa frumentacea*, *Glinus lotoides*, *Hedyotis corymbosa*, *Heliotropium ovalifolium*, *Hydrilla verticillata*, *Indigofera linnaei*, *I. tinctoria*, *Mimosa hamata*, *Nymphaea nouchali*, *Paspalum vaginatum*, *Pentatropis nivalis*, *Phyla nodiflora*, *Phyllanthus amarus*, *Portulaca oleracea*, *Sagittaria trifolia*, *Senna italica*, *Sida ovata*, *Sporobolus helvolus*, *Tephrosia villosa*, etc.

PREVIOUS WORK AND PRESENT STUDY

Bharati (1959) explored Vishnagar taluka and published a checklist of 253 species; most of the species mentioned by him are from gardens. Shah (1964, 1964a & 1964b) published a vegetation and floristic account of Taranga hills. Except these there are no published literature on the phytodiversity of the district, although, some collections were made from the district by many workers viz. Saxton & Sedgwick (1918), Saxton (1922), Shah (1963), Shah & Yogi (1974) etc. while working on flora and floristics of North Gujarat. To fill this lacuna and explore the phytodiversity of the district, four intensive and exhaustive exploration tours in different seasons have been undertaken by the author. In the present work a total 492 species belonging to 289 genera and 85 families are enumerated. The specimens have been deposited in the herbarium of Arid Zone Circle, Botanical Survey of India, Jodhpur (BSJO). Further, collections deposited in the herbarium of Botanical Survey of India, Pune, (BSI); Sardar Patel University, Vallabh Vidhyanagar (SPU) and The M.S. University, Vadodara (BARO), from Mehsana district are also incorporated in the present work. Species marked with an asterisk (*) are included on the authority of Bharati (1959). All specimens unless otherwise indicated are deposited in BSJO.

ENUMERATION

PTERIDOPHYTES

ASPLENIACEAE

Actinopteris radiata Link

Taranga hills, *Parmar* 19223; Taranmata R.F., Kheralu, *Parmar* 12520.

ADIANTACEAE

Adiantum lunulatum Burm.

Taranga hills, *Parmar* 12937.

ANGIOSPERMS

RANUNCULACEAE

***Clematis gouriana** Roxb. ex DC.

Near Hunuman temple, Vishnagar.

ANNONACEAE

Milusa tomentosa (Roxb.) Finet & Gagnep.

Taran hills, *Parmar* 12540.

MENISPERMACEAE

Cissampelos pareira L. var. **hirsuta** (Buch.-Ham.ex DC.) Forman

Vishnagar, *Raizada* 116187 (DD); Mansa, *D.V. Yogi* 333.

Cocculus hirsutus (L.) Theob.

Near Vishnagar, *Parmar* 21667; Dabhola village, *Parmar* 21680; Vishnagar, *Kaul & party* 9379.

Tinospora cordifolia (Willd.) Miers ex Hook.f. & Thomson

On the way to Dharoi dam, *Parmar* 12955.

NYMPHAEACEAE

Nymphaea nouchali Burm.f.

Thol bird sanctuary, *Parmar* 21783; Kanjari, near Kadi, *Parmar* 12995 (BSJO).

Nymphaea pubescens Willd.

Kanjari, near Kadi, *Parmar* 12989 (BSJO); Mehsana, *K.J. Vyas* 359 (SPU).

NELUMBONACEAE

***Nelumbo nucifera** Gaertn.

Vadnagar.

PAPAVERACEAE

Argemon mexicana L.

Near Mahudi, *Parmar* 21746; Near Unja, *Parmar* 12915 (BSJO).

BRASSICACEAE

Brassica rapa L. subsp. **campestris** (L.) Clapham

Kadi, *D.V. Yogi* 2710 (SPU).

Brassica oleracea L. var. **botrytis** L.

Kadi, *D.V. Yogi* 2632 (SPU).

CAPPARACEAE

Cadaba fruticosa (L.) Druce

Near Paldi village, *Parmar* 21670; Becharaji, *Parmar* 12756 (BSJO); Mahudi, *D.V. Yogi* 280 (SPU); Vishnagar- Becharaji road, *Peerzada* 18720 (LWG).

Capparis decidua (Forssk.) Edgew.

Near Vijapur, *Parmar* 12726; Near Becharaji, *Parmar* 19256; Anandpura village, *Parmar* 21633 (BSJO); Mahudi, *D.V. Yogi* 88 (SPU).

Capparis grandis L.f.

Modhera, *Parmar* 19298; Taran hills, *Parmar* 12543 (BSJO); Mahudi, *D.V. Yogi* 469 (SPU).

Capparis sepiaria L.

On the way to Becharaji, *Parmar* 19249, 19254; Vijapur ravines forest, *Parmar* 12592 (BSJO); Mahudi, *D.V. Yogi* 12 (SPU).

Cleome aspera Koenig ex DC.

Mahudi, *D.V. Yogi* 765; Kadi, *D.V. Yogi* 2088 (SPU).

Cleome gynandra L.

Near Dabhola village, *Parmar* 19212; Mehsana, *Parmar* 8269 (BSJO); Kadi, *D.V. Yogi* 2078 (SPU).

Cleome viscosa L.

Dharoi dam, *Parmar* 12557; Aithor V-2 Gochar, near Unja, *Parmar* 12917 (BSJO).

Crateva magna (Lour.) DC.

Kansa, *V. Badrinath* 2088 (SPU).

Maerua oblongifolia (Forssk.) A. Rich. [= *M. arenaria* (DC.) Hook.f. & Thomson].

On the way to Becharaji, *Parmar* 12759, 21728 (BSJO); Mahudi, *D.V. Yogi* 494 (SPU).

VIOLACEAE

Hybanthus enneaspermus (L.) F. Muell.

Mahudi, *D.V. Yogi* 21 (SPU); Kadi, *D.V. Yogi* 2076 (SPU).

POLYGALACEAE

Polygala polifolia C. Presl.

Taranga hills, *S.V. Shevade* 93 (BARO); Mahudi, *D.V. Yogi* 774 (SPU).

Polygala erioptera DC.

Near Dharoi dam, *Parmar* 19231; Nugal village, *Parmar* 21780 (BSJO); Mahudi, *D.V. Yogi* 464 (SPU).

CARYOPHYLLACEAE

Polycarpaea corymbosa (L.) Lam.

Nugal village, *Parmar* 21779; Dharoi dam, *Parmar* 12973 (BSJO); Mahudi, *D.V. Yogi* 119 (SPU).

Polycarpon prostratum (Forssk.) Aschers. & Schweinf.

Dharoi dam, *Parmar* 12578 (BSJO).

Spergula arvensis L.

Mahudi, *D.V. Yogi* 532 (SPU).

PORTULACACEAE

Portulaca oleracea L.

Near Mehsana, *Parmar* 19209; Thol bird sanctuary, *Parmar* 21766 (BSJO).

Portulaca oleracea L. var. **linearifolia** Sivar. & Manilal

Near Mehsana, *Parmar* 19208 (BSJO).

TAMARICACEAE

Tamarix ericoides Rottler

Sabarmati River, near Mahudi, *R.P. Bhatt* 1501 (BARO); *D.V. Yogi* 120 (SPU).

ELATINACEAE

Bergia ammannioides Roxb. ex Roth

Near Dharoi dam, *Parmar* 19239 (BSJO); Mahudi, *G.L. Shah* 11707 (SPU).

Bergia suffruticosa (Delile) Fenzl

Narmada canal, near Kadi, *Parmar* 21750 (BSJO); Mahudi, *D.V. Yogi* 690 (SPU).

MALVACEAE

Abelmoschus tuberculatus Pal & Singh var. **deltoidefolia** T.K. Paul & M.P. Nayar

Mumanvas village, *Parmar* 12978 (BSJO).

Abutilon indicum (L.) Sweet

Vijapur, *Parmar* 12594 (BSJO).

Abutilon pannosum (G. Forst.) Schltdl.

Thol bird sanctuary, *Parmar* 21759 (BSJO).

Abutilon ramosum (Cav.) Guill. & Perr.

Near Vishnagar, *Parmar* 5790 (BSJO).

Gossypium arboreum L. var. **wightianum** (Watt.) M.R. Almeida

On the way to Becharaji, *Parmar* 19253; Kadi, *Parmar* 12737 (BSJO).

Gossypium stocksii Mast.

Mehsana, *Parmar* 8272 (BSJO).

Hibiscus micranthus L.f.

Taran hills, *Parmar* 12536; Aithor, V-2 Gochar, near Unja, *Parmar* 12919 (BSJO).

Hibiscus sabdariffa L.

Taranga hills, *Parmar* 21690 (BSJO).

Pavonia zeylanica (L.) Cav.

Taranga hills, *Parmar* 21686; on the way to Dharoi dam, *Parmar* 12949 (BSJO).

Sida cordata (N.L. Burm.) Borss. Waalk.

Near Vishnagar, *Parmar* 5789 (BSJO).

Sida ovata Forssk.

Thol bird sanctuary, *Parmar* 21761; Kheralu, *Parmar* 8292 (BSJO).

Sida spinosa L.

Anandpura village, *Parmar* 21635 (BSJO).

STERCULIACEAE

Helicteres isora L.

Taranga hills, *Parmar* 12533 (BSJO).

Melhanian futteyporensis Munro ex Mast. var. **major** (Blatt. & Hallb.) Santapau

Dharoi dam, *Parmar* 12970 (BSJO).

Sterculia urens Roxb.

Taranmata R.F., *Parmar* 21704, 12509 (BSJO).

TILIACEAE

Corchorus aestuans L.

Taranga hills, *Parmar* 8090 (BSJO).

Corchorus fascicularis Lam.

Thol bird sanctuary, *Parmar* 21760 (BSJO).

Corchorus olitorius L.

Taranga hills, *Parmar* 8262 (BSJO).

***Corchorus trilocularis** L.

Weed in field, Vishnagar.

Grewia asiatica L.

Near Vijapur, *Parmar* 12600 (BSJO).

Grewia damine Gaertn.

Taran hills, *Parmar* 12532 (BSJO).

Grewia flavescens Juss.

Taranga hills, *S.K. Jain* 11342 (BSI).

Grewia tenax (Forssk.) Fiori

On the way to Becharaji, *Parmar* 19248; Taranmata R.F., *Parmar* 12505; Vijapur ravines forest, *Parmar* 12589; Kadi, *Parmar* 12738; Rampura near Mehsana, *Parmar* 21620 (BSJO).

Triumfetta pentandra A. Rich.

Mehsana, *Parmar* 5776 (BSJO).

ZYGOPHYLLACEAE

Tribulus lanuginosus L.

Vishnagar, *Parmar* 19262 (BSJO).

Tribulus rajasthanensis Bhandari & Sharma

Near Dabhola village, *Parmar* 19211 (BSJO).

Tribulus terrestris L.

On the way to Unja, *Parmar* 12908 (BSJO).

OXALIDACEAE

Oxalis corniculata L.

Taranga hills, *Parmar* 21683 (BSJO).

RUTACEAE

Limonia acidissima L.

Taran hills, *Parmar* 12542 (BSJO).

SIMAROUBACEAE

***Ailanthus excelsa** Roxb.

Near field, Vishnagar.

BALANITACEAE

Balanites roxburghii Planch.

Kadi, *Parmar* 12736; Karanjari, *Parmar* 21616 (BSJO).

BURSERACEAE

Boswellia serrata Roxb.

Taranmata R.F., *Parmar* 19267 (BSJO).

Commiphora wightii (Arn.) Bhandari

Vijapur ravines forest, *Parmar* 12593 (BSJO).

MELIACEAE

Azadirachta indica A. Juss.

Near Becharaji, *Parmar* 19252 (BSJO).

Melia azedarach L.

Balol, *Parmar* 21729 (BSJO).

CELASTRACEAE

Maytenus senegalensis (Lam.) Exell

Taran hills, *Parmar* 21693 (BSJO); Taranga hills, *R.P. Bhatt* 196 (BARO).

RHAMNACEAE

Ziziphus glabrata Heyne ex Roth

On the way to Vishnagar, *Kaul & party* 9336 (LWG).

Ziziphus mauritiana Lam.

Near Becharaji, *Parmar* 19251; Near Mahudi, *Parmar* 21745 (BSJO).

Ziziphus mauritiana Lam. var. **pubescens** Bhandari & Bhansali

Taranmata R.F., *Parmar* 12506 (BSJO).

Ziziphus nummularia (Burm.f.) Wight & Arn.

Kanjari, near Kadi, *Parmar* 21773; Taranga hills, *Parmar* 19226; Near Mahudi, *Parmar* 21747 (BSJO).

Ziziphus oenophila (L.) Mill.

Devrasan village, *Parmar* 21627 (BSJO).

Ziziphus xylopyra (Retz.) Willd.

Taran hills, *Parmar* 12529 (BSJO).

VITACEAE

Ampelocissus latifolia (Roxb.) Planch.

Taranmata R.F., *Parmar* 12516 (BSJO).

Cayratia trifolia (L.) Domin

Taran hills, *Parmar* 12527; Modhera, *Parmar* 19293; Rampura, near Mehsana, *Parmar* 21618 (BSJO).

Cissus repanda Vahl

Taran hills, *Parmar* 12537 (BSJO).

SAPINDACEAE

Cardiospermum halicacabum L.

Taranga hills, *Parmar* 8267 (BSJO).

ANACARDIACEAE

Lannea coromandelica (Houtt.) Merr.

Taranmata R.F., *Parmar* 19274 (BSJO).

Spondias pinnata (L.f.) Kurz

Taran hills, *Parmar* 12534 (BSJO).

MORINGACEAE

Moringa concanensis Nimmo

Near Unja, *Parmar* 12913 (BSJO).

Moringa oleifera Lam.

Udalpur, *Parmar* 21742 (BSJO).

LEGUMINOSAE : PAPILIONOIDEAE

***Abrus precatorius** L.

Abrus melanospermus Hassk. (= *A. pulchellus* Wall. ex Thwaites)

Taranga hills, *Parmar* 5795 (BSJO).

Aeschynomene indica L.

Kanjari, *Parmar* 21602 (BSJO).

Alhagi maurorum Medik.

Rantej village, *Parmar* 19258, 21736 (BSJO); On the way to Vishnagar, *Kaul & party* 9335 (LWG).

Alysicarpus longifolius (Rottl. ex Spreng.) Wight & Arn.

Dharoi dam, *Parmar* 12965 (BSJO).

Alysicarpus monilifer (L.) DC.

Dharoi dam, *Parmar* 12568; Piporlao village, *Singh* 5489 (BSJO).

Alysicarpus vaginalis (L.) DC. var. **venosa** (Blatt. & Hallb.) A. Pramanik & Thoth.

Thol bird sanctuary, *Parmar* 21763 (BSJO).

Butea monosperma (Lam.) Taub.

Taranmata R.F., *Parmar* 19270 (BSJO).

Canavalia ensiformis (L.) DC.

Modhera, *Parmar* 19294; on the way to Becharaji, *Parmar* 21649 (BSJO).

Canavalia gladiata (Jacq.) DC.

Mehsana, *Parmar* 5778 (BSJO).

Clitoria ternatea L. (= *C. ternatea* L. var. *pilosula* Benth.).

On the way to Modhera, *Parmar* 19288, 19290; Charul Gochar, Kadi, *Parmar* 12748; Near Mehsana, *Parmar* 5782; Mehsana, *Parmar* 12987 (white flowered) (BSJO); Charul Gochar, Kadi, *Parmar* 12742 (BSJO).

Crotalaria burhia Buch.-Ham. ex Benth.

Thol bird sanctuary, *Parmar* 19205; Taranmata R.F., *Parmar* 12522 (BSJO).

Crotalaria hebecarpa (DC.) Rudd.

Taranga hills, *Parmar* 12922; Near Unja, *Parmar* 21695 (BSJO).

***Crotalaria juncea** L.

Weeds in fields, Vishnagar.

Crotalaria linifolia L.f.

Near Vijapur, *Parmar* 12983; Taranga hills, *Parmar* 12921 (BSJO).

Crotalaria medicaginea Lam.

Near Mehsana, *Parmar* 5786 (BSJO).

Crotalaria retusa L.

Near Becharaji, *Parmar* 21731 (BSJO).

Crotalaria triquetra Dalzell

Mahudi, *D. V. Yogi* 54 (SPU).

Dalbergia sissoo Roxb.

On the way to Vijapur, *Parmar* 19278 (BSJO).

Desmodium procumbens (Mill.) Hutch.

Taranga hills, *Parmar* 8089 (BSJO).

Indigofera cordifolia Heyne ex Roth

Taranga hills, *Parmar* 12923 (BSJO).

Indigofera hochstetteri Baker

Kanjari, Kadi, *Parmar* 21601 (BSJO).

***Indigofera karnatakana** Sanjappa

College grounds and fields, Vishnagar.

***Indigofera linifolia** (L.f.) Retz.

College ground, Vishnagar.

Indigofera linnaei Ali

Thol bird sanctuary, *Parmar* 21791; Dharoi dam, *Parmar* 12567; Kheralu R.F., *Parmar* 21677; Near Unja, *Parmar* 21697; Mehsana, *Parmar* 5774; Rantej village, *Parmar* 21739 (BSJO).

Indigofera oblongifolia Forssk.

Charul Gochar, Kadi, *Parmar* 12743; Kanjari, Kadi, *Parmar* 12996 (BSJO).

Indigofera tinctoria L.

Thol bird sanctuary, *Parmar* 21762; Taranga hills, *Parmar* 5798 (BSJO).

Indigofera trita L.f.

Kanjari, Kadi, *Parmar* 21606 (BSJO).

Lablab purpurens (L.) Sweet

Mehsana, *S.D. Mahajan* 11315 (BSI).

Medicago sativa L.

On the way to Vijapur, *Parmar* 19281 (BSJO).

Mucuna pruriens (L.) DC.

Dharoi dam, *Parmar* 12968 (BSJO).

Pongamia pinnata (L.) Pierre

Becharaji, *Parmar* 12901 (BSJO).

Rhynchosia capitata (Heyne ex Roth) DC.

Charul gochar, Kadi, *Parmar* 12749 (BSJO).

Rhynchosia minima (L.) DC.

Jhilia village, *Singh* 5492 (BSJO).

Sesbania grandiflora (L.) Poir.

Near Mehsana, *Parmar* 8277 (BSJO).

***Sesbania sesban** (L.) Merr.

Along hedges, Vishnagar.

Tephrosia apollinea (Delile) Link

On the way to Vijapur, *Parmar* 19279 (BSJO).

Tephrosia collina V.S. Sharma

Near sulipur, on the way to Taranga hills near Vadnagar, *Parmar* 5792 (BSJO).

Tephrosia hookeriana Wight & Arn.

On the way to Unja, *Parmar* 12906 (BSJO).

Tephrosia purpurea (L.) Pers.

Vishnagar, *Parmar* 21660; Taranga hills, *Parmar* 5797 (BSJO).

Tephrosia senticosa (L.) Pers.

On the way to Vijapur, *Parmar* 19276; Taranga hills, *Parmar* 5799 (BSJO).

Tephrosia strigosa (Dalzell) Santapau & Maheshw.

Kheralu, *Parmar* 8299 (BSJO).

Tephrosia villosa (L.) Pers.

Thol bird sanctuary, *Parmar* 19202; Dharoi dam, *Parmar* 12569; Sulipur, near Vadnagar, *Parmar* 5794 (BSJO).

Teramnus labialis (L.f.) Spreng.

Vishnagar, *Parmar* 21665 (BSJO).

Teramnus mollis Benth.

Near Mehsana, *Parmar* 8275 (BSJO).

Vigna aconitifolia (Jacq.) Marechal

Taranga hills, *Parmar* 8088 (BSJO).

Vigna unguiculata (L.) Walp.

Narmada canal, near Kadi, *Parmar* 21756 (BSJO).

Zornia gibbosa Span.

Taranga hills, *Parmar* 12924 (BSJO).

LEGUMINOSAE : CAESALPINIOIDEAE

Bauhinia racemosa Lam.

Taranmata R.F., *Parmar* 12512 (BSJO).

Caesalpinia bonduc (L.) Roxb.

Near Udaapur, on the way to Vijapur, *Parmar* 12582; Near Devrasan village, *Parmar* 21626 (BSJO).

Caesalpinia crista L.

Mahudi, D.V. Yogi 918 (SPU).

Caesalpinia decapetala (Roth) Alston

Taran hills, *Parmar* 12526 (BSJO).

Cassia fistula L.

Taran hills, *Parmar* 12541 (BSJO).

Cassia javanica L.

Deevrasan village, *Parmar* 21625 (BSJO).

Cassia roxburghii DC.

Near Satlasana, *Parmar* 19272; Near Dabhola village, Vijapur, *Parmar* 12584 (BSJO).

Chamaecrista absus (L.) H.S. Irwin & Barneby

Dharoi dam, *Parmar* 12971 (BSJO).

Chamaecrista pumila (Lam.) V. Singh

Taran hills, *Parmar* 8094 (BSJO).

Peltophorum pterocarpum (DC.) Baker ex K. Heyne

Modasa forest plantation, *Parmar* 19295 (BSJO).

Senna auriculata (L.) Roxb.

Taranmata R.F., *Parmar* 12521, 21705 (BSJO); Mahudi, D.V. Yogi 404 (SPU).

Senna italica Mill.

Thol bird sanctuary, *Parmar* 19206; Dharoi dam, *Parmar* 12571 (BSJO); Mahudi, D.V. Yogi 782 (SPU).

Senna obtusifolia (L.) H.S. Irwin & Barneby

On the way to Dharoi dam, *Parmar* 12956 (BSJO); Mahudi, G.L. Shah 11702 (SPU).

Senna occidentalis (L.) Link

Vijapur, *Parmar* 12585; Near Mehsana, *Parmar* 5785 (BSJO).

Senna tora (L.) Roxb.

Mehsana, S.D. Mahajan 11290 (BSI).

Tamarindus indica L.

Rantej village, *Parmar* 19255; Near Kanjari, *Parmar* 21770; Taranmata R.F., *Parmar* 12514 (BSJO).

LEGUMINOSAE : MIMOSOIDEAE

***Acacia catechu** (L.f.) Willd.

Near Vishnagar.

Acacia chundra (Roxb. ex Rottler) Willd.

Taranga hills, *Parmar* 21681 (BSJO).

Acacia eburnea (L.f.) Willd.

Kanjari, Kadi, *Parmar* 21772 (BSJO).

Acacia nilotica (L.) Willd. ex Delile subsp. **indica** (Benth.) Brenan

Vihar village, *Parmar* 12598; near Udalpur, *Parmar* 21744 (BSJO).

Acacia nilotica (L.) Willd. ex Delile subsp. **subalata** (Vatke) Brenan

Near Vishnagar, *Parmar* 21668 (BSJO).

Acacia senegal (L.) Willd.

Vijapur ravines forest, *Parmar* 12590 (BSJO); Taranga hills, *S.K. Jain* 11361 (BSI).

Acacia tortilis (Forssk.) Heyne subsp. **raddiana** (Savi) Brenan

Near Saptamukhi Mahadev, Vijapur, *Parmar* 12727 (BSJO).

Albizia lebbeck (L.) Benth.

Falu village near Vijapur, *Parmar* 12729; Devrasan village, *Parmar* 21628; on the way to Vijapur, *Parmar* 19277; Rampura near Mehsana, *Parmar* 21621 (BSJO).

Dichrostachys cinerea (L.) Wight & Arn. var. **indica** Brenan

Taranmata R.F., *Parmar* 21510, 21699; Dharoi dam, *Parmar* 12960 (BSJO).

Mimosa hamata Willd.

Near Datheli village, *Parmar* 19257; Mumanwas, *Parmar* 12976 (BSJO); Becharaji- Patan Road, *Peerzada & party* 18721 (LWG).

Neptunia triquetra (Vahl) Benth.

Rantej village, *Parmar* 19261 (BSJO).

Pithecellobium dulce (Roxb.) Benth.

Taranga hills, *Parmar* 21688 (BSJO).

*** Prosopis cineraria** (L.) Druce

Along railway line towards Mehsana, Vishnagar.

Prosopis juliflora (Sw.) DC.

Falu village, Vijapur, *Parmar* 12728 (BSJO).

COMBRETACEAE

Anogeissus latifolia (Roxb. ex DC.) Wall. ex Guill & Perr.

Kheralu, *Parmar* 12939 (BSJO).

Anogeissus pendula Edgew.

Taran hills, *Parmar* 21689 (BSJO).

MYRTACEAE

Syzygium salicifolium (Wight) J. Graham [= *S. heyneanum* (Duthie) Wall. ex Gamble]

Becharaji, *Parmar* 12904 (BSJO).

***Syzygium jambos** (L.) Alston

Outskirts of Vishnagar.

LECYTHIDACEAE

Couroupita guianensis Aubl.

Dabhola village, *Parmar* 21692 (BSJO).

LYTHRACEAE

Ammannia auriculata Willd.

Mehsana, *Parmar* 12986 (BSJO).

Ammannia baccifera L.

Sametra village, *Parmar* 21725 (BSJO).

Rotala indica (Willd.) Koehne

Kanjari, Kadi, *Parmar* 21605 (BSJO).

ONAGRACEAE

Ludwigia hyssopifolia (G. Don) Excell

Mumanwas, *Parmar* 12979 (BSJO).

CUCURBITACEAE

Blastania garcini (L. Cogn.

Kanjari near Kadi, *Parmar* 13000; Near Mehsana, *Parmar* 8276 (BSJO).

Citrullus colocynthis (L.) Schrad.

Dharoi dam, *Parmar* 12570 (BSJO).

Citrullus lanatus (Thunb.) Matsum. & Nakai

Nugal village, *Parmar* 21774 (BSJO).

Coccinia grandis (L.) Voigt

On the way to Becharaji, *Parmar* 19246; Taran hills, *Parmar* 12524; Kamal pura near Vijapur, *Parmar* 12583; Rampura near Mehsana, *Parmar* 21619, 5780 (BSJO).

***Cucumis callosus** (Rottler) Cogn. & Harms

On hedges, Vishnagar.

Citrullus sativus L.

Mehsana, *Parmar* 8264 (BSJO).

Cucurbita moschata (Duchesne ex Lam.) Duchesne ex Poir.

Sametra village, *Parmar* 21724 (BSJO).

Lagenaria siceraria (Molina) Standl.

Sametra village, *Parmar* 21726 (BSJO).

Luffa acutangula (L.) Roxb. var. **amara** (Roxb.) C.B. Clarke

Kheralu, *Parmar* 8291 (BSJO).

Momordica balsamina L.

Nugal village, *Parmar* 19291; Taran hills, *Parmar* 12525; Near Mehsana *Parmar* 8280 (BSJO).

Momordica charantia L.

Rampura near Mehsana, *Parmar* 21617 (BSJO).

Momordica dioica Roxb. ex Willd.

On the way to Becharaji, *Parmar* 19247; Charul Gochar, Kadi, *Parmar* 12744; On the way to Becharaji, *Parmar* 21646 (BSJO).

Mukia maderaspatana (L.) M. Roem.

Taranga hills, *Parmar* 8268 (BSJO).

Trichosanthes cucumerina L.

Umta village near Vishnagar, *Parmar* 8281; Taranga hills, *Parmar* 5796 (BSJO).

CACTACEAE

Opuntia elatior Mill.

Vijapur ravines forest, *Parmar* 12595 (BSJO).

AIZOACEAE

Sesuvium portulacastrum (L.) L.

Near Vijapur, *Parmar* 12599 (BSJO).

Trianthema portulacastrum L.

Dabhola village, *Parmar* 19219; Nugal village, *Parmar* 21776; Balol, *Parmar* 21730; On the way to Becharaji, *Parmar* 12758 (BSJO).

Zaleya govindia (Buch.-Ham. ex G. Don) N.C. Nair

Modhera, *Parmar* 12905; Paldi village, *Parmar* 12948 (BSJO).

MOLLUGINACEAE

Glinus lotoides L.

Vishnagar, *Parmar* 21662 (BSJO).

Glinus oppositifolius (L.) A. DC.

Thol bird sanctuary, *Parmar* 21789; Dharoi dam, *Parmar* 19234, 12580; near Paldi village, *Parmar* 21671 (BSJO).

Mollugo nudicaulis Lam.

Badmali, near Sabarmati river, Vijapur, *Parmar* 12730 (BSJO).

RUBIACEAE

Dentella repens (L.) J. R. Forst. & G. Forst.

Dharoi dam, *Parmar* 19241 (BSJO).

Gardenia resinifera Roth

Taranmata R.F., *Parmar* 12507 (BSJO).

Kohautia aspera (Heyne ex Roth) Bremek.

Kuwasana village, *Parmar* 21639 (BSJO).

Hedyotis corymbosa (L.) Lam. var. **linearis** (DC.) Deb. & R.M. Dutta

Thol bird sanctuary, *Parmar* 21796; Kuwasana village, *Parmar* 21637; Taranga hills, *Parmar* 12936 (BSJO).

Spermacoce articularis L.f.

Taranga hills, *Parmar* 5800 (BSJO).

Spermacoce pusilla Wall.

Taranga hills, *Parmar* 8099 (BSJO).

Spermadictyon suaveolens Roxb.

Taranga hills, *Parmar* 21684 (BSJO).

ASTERACEAE

Acanthospermum hispidum DC.

Near Dabhola village, *Parmar* 19213; Umta village, *Parmar* 8289 (BSJO).

***Adenostemma lavenia** (L.) Kuntze

Weed in fields, Vishnagar

Ageratum conyzoides L.

Kuwasana village, *Parmar* 21638 (BSJO).

Amberboa ramosa (Roxb.) Jafri

Nugal village, *Parmar* 21781 (BSJO); On the way to Vishnagar, *Kaul & party* 9343 (LWG).

Bidens biternata (Lour.) Merr. & Sherff.

Taranga hills, *Parmar* 8095 (BSJO).

Blumea obliqua (L.) Druce

Thol bird sanctuary, *Parmar* 21786; On the way to Becharaji, *Parmar* 21727; Nugal village, *Parmar* 21775 (BSJO).

Caesulia axillaris Roxb.

Meetha gam, on the way to Becharaji, *Parmar* 21722; Kanajari, *Parmar* 21608 (BSJO).

Cotula anthemoides L.

Dharoi dam, *Parmar* 19235 (BSJO).

Echinops echinatus Roxb.

Taranga hills, *Parmar* 21685 (BSJO).

Eclipta prostrata (L.) L.

Paldi village, *Parmar* 12945 (BSJO).

Glossocardia bosvallia (L.f.) DC.

Taranga hills, *Parmar* 12930 (BSJO).

Grangea maderaspatana (L.) Poir.

Paldi village, *Parmar* 21673 (BSJO).

Launaea procumbens (Roxb.) Ramayya & Rajgopal

On the way to Dharoi dam, *Parmar* 12950 (BSJO).

***Launaea sarmentosa** (Willd.) Sch. Bip. ex Kuntze

Weeds in wastelands, Vishnagar

Parthenium hysterophorus L.

Vihal village near Vijapur, *Parmar* 12596 (BSJO).

Pentanema indicum (L.) Ling

Near Becharaji, *Parmar* 21655 (BSJO).

Pluchea arguta Boiss.

Vishnagar, *Kaul & party* 9329 (LWG).

Pulicaria angustifolia DC.

Dabhola village, *Parmar* 21679 (BSJO).

Pulicaria crispa (Forssk.) Benth. & Hook.f. ex Oliv. Hiern

Vishnagar, *Parmar* 19264, 21661; Dharoi deam, *Parmar* 12572 (BSJO).

Sclerocarpus africanus Jacq. ex Murray

Taranga hills, *Parmar* 8296, 12925 (BSJO).

Sonchus asper (L.) Hill.

Umta village, *Parmar* 8287 (BSJO).

Sonchus oleraceus L.

On the way to Unja, *Parmar* 21696 (BSJO).

Sphaeranthus indicus L.

Dharoi dam, *Parmar* 21706 (BSJO).

***Tricholepis glaberrima** DC.

Vishnagar.

Tridax procumbens L.

Dharoi dam, *Parmar* 19229; Taranmata R.F., *Parmar* 12544 (BSJO).

Vernonia anthelmintica (L.) Willd.

Paldi village, *Parmar* 12943 (BSJO).

Vernonia cinerascens Sch. Bip.

Taranga hills, *Parmar* 8270 (BSJO).

***Vernonia cinerea** (L.) Less.

In wastelands, Vishnagar.

Xanthium pungens Wallr.

Paldi village, *Parmar* 21672; Thol bird sanctuary, *Parmar* 21764 (BSJO).

Xanthium indicum Koenig

Near Mehsana, *Parmar* 5781 (BSJO).

PLUMBAGINACEAE

Dyerophytum indicum Kuntze

Dharoi dam, *Parmar* 12959 (BSJO).

Plumbago zeylanica L.

Sulipur village, near Vadnagar, *Parmar* 5793 (BSJO).

SAPOTACEAE

Madhuca longifolia (Konig) J.F. Macbr.

On the way to Vijapur, *Parmar* 19286 (BSJO).

Manilkara hexandra (Roxb.) Dubard

Taranmata R.F., *Parmar* 21702 (BSJO).

EBENACEAE

Diospyros montana Roxb. var. **cordifolia** Roxb.

Taranga hills, *Parmar* 19225; Taranmata R.F., *Parmar* 12517 (BSJO).

OLEACEAE

Nyctanthes arbor-tristis L.

Taranmata R.F., *Parmar* 21701; Dharoi dam, *Parmar* 12974 (BSJO).

SALVADORACEAE

Azima tetracantha Lam.

Vijapur, *Parmar* 12586; Pilwai village, *Parmar* 21630 (BSJO).

Salvadora persica L.

Kheralu R.F., *Parmar* 21675 (BSJO).

APOCYNACEAE

Cascabella thevetia (L.) Lippold [= *Thevetia peruviana* (Pers.) Merr.].

Udalpur, *Parmar* 21743 (BSJO).

Catharanthus pusillus (Murray) G. Don

Mumanvas, *Parmar* 12980 (BSJO).

Holarrhena pubescens (Buch.-Ham.) Wall. ex G. Don

Near Satlasana, *Parmar* 19273; Taran hills, *Parmar* 12530 (BSJO).

Wrightia tinctoria R. Br.

Taranmata R.F., *Parmar* 12513, 12961, 12968 (BSJO).

ASCLEPIADACEAE

Calotropis gigantea (L.) R.Br.

Near Mehasna, *Parmar* 21716 (BSJO).

Calotropis procera (Aiton) W.I. Aiton

Thol bird sanctuary, *Parmar* 19204; Near Vijapur, *Parmar* 12724 (BSJO).

Dregea volubilis (L.f.) Benth ex Hook.f. [= *Wattakaka volubilis* (L.f.) Stapf].

Near Vijapur, *Parmar* 12985 (BSJO).

Leptadenia pyrotechnica (Forssk.) Decne.

Taranmata R.F., *Parmar* 12518; Dharoi dam, *Parmar* 12555 (BSJO).

Leptadenia reticulata (Retz.) Wight & Arn.

Taranmata R.F., *Parmar* 21703; Vijapur ravines forest, *Parmar* 12588 (BSJO).

Pentatropis capensis (L.f.) Bullock

Kadi, *Parmar* 12740 (BSJO).

Pentatropis nivalis (J.F. Gmel) D.V. Field & J.R.I. Wood

Thol bird sanctuary, *Parmar* 21790; Dharoi dam, *Parmar* 19242; On the way to Becharaji, *Parmar* 21653 (BSJO).

Pergularia daemia (Forssk.) Chiov.

Becharaji, *Parmar* 12755; Rampura near Mehsana, *Parmar* 21623 (BSJO).

Telosma cordata (Burm.f.) Merr.

Near Modhera, *Parmar* 19296; Near Becharaji, *Parmar* 19250; Rampura near Mehsana, *Parmar* 21622; Taran hills, *Parmar* 12539; Kadi, *Parmar* 12739 (BSJO).

GENTIANACEAE

Enicostema axillare (Lam.) A. Raynal

Charul Gochar, Kadi, *Parmar* 12745 (BSJO).

BORAGINACEAE

Coldenia procumbens L.

Thol bird sanctuary, *Parmar* 21798; Dharoi dam, *Parmar* 12573; Anandpura village, *Parmar* 21632 (BSJO); Near Vishnagar, *Kaul & party* 9354 (LWG).

Cordia dichotoma Forst.f.

Vijapur, *Parmar* 12587 (BSJO).

Cordia gharaf (Forssk.) Ehrenb. ex Asch.

Modhera, *Parmar* 19292 (BSJO).

Ehretia aspera Willd.

Taranmata R.F., *Parmar* 19269 (BSJO).

Ehretia laevis Roxb.

Taran hills, *Parmar* 12545 (BSJO).

Heliotropium calcareum Stocks

Near Becharaji, *Parmar* 21733 (BSJO).

Heliotropium indicum L.

Near tank, Vishnagar, *Parmar* 19263 (BSJO).

Heliotropium marifolium Retz. var. **wallichii** (C.B. Clarke) Kazmi

Dharoi dam, *Parmar* 19230 (BSJO).

Heliotropium ovalifolium Forssk.

Thol bird sanctuary, *Parmar* 21797; Dharoi dam, *Parmar* 12579 (BSJO).

Heliotropium subulatum (Hochst. ex DC.) Vatke

Nugal village, *Parmar* 21777 (BSJO).

Heliotropium supinum L.

Meetha gam, on the way to Becharaji, *Parmar* 21721 (BSJO); Vishnagar road, *Kaul & party* 9334, 9327 (LWG).

Heliotropium zeylanicum (Burm. f.) Lam.

Dharoi dam, *Parmar* 12574 (BSJO).

Sericostoma pauciflorum Stocks

Taranmata R.F., *Parmar* 12523 (BSJO).

Trichodesma zeylanica (Burm.f.) R. Br.

Dharoi dam, *Parmar* 12549 (BSJO).

Trichodesma indicum (L.) Lehm. var. **amplexicaule** (Roth) Cooke

Kadi, *D.V. Yogi* 2689 (SPU).

CONVOLVULACEAE

Convolvulus scindicus Stocks

Dharoi dam, *Parmar* 12550 (BSJO).

Cressa cretica L.

Rantej village, *Parmar* 21737 (BSJO).

Evolvulus alsinoides (L.) L.

Near Vishnagar, *Parmar* 5788 (BSJO).

Hewittia malabarica (L.) Suresh

Near Mehsana, *Parmar* 5772 (BSJO); Kadi, *D.V. Yogi* 2251 (SPU).

Ipomoea aquatica Forssk.

On the way to Becharaji, *Parmar* 12757, 21651; Near Mehsana, *Parmar* 57779 (BSJO).

Ipomoea cairica (L.) Sweet

Near Vishnagar, *Parmar* 21669; Near Unja, *Parmar* 12914 (BSJO).

Ipomoea cairica (L.) Sweet var. **indica** Hallier f.

Mumanwas village, *Parmar* 12977 (BSJO).

Ipomoea carnea Jacq. subsp. **fistulosa** (Mart. ex Choisy) D.F. Austin

Govindpura chokadi, near Vijapur, *Parmar* 12725 (BSJO).

Ipomoea coptica (L.) Roth

Dharoi dam, *Parmar* 12942 (BSJO).

Ipomoea dichroa Choisy

Becharaji, *Parmar* 21659 (BSJO).

Ipomoea nil (L.) Roth

Becharaji, *Parmar* 21658; Mehsana, *Parmar* 5775 (BSJO).

Ipomoea nil (L.) Roth var. **himalaica** (C.B. Clarke) Johri

On the way to Becharaji, *Parmar* 21647-A (BSJO).

Ipomoea obscura (L.) Ker Gawl.

Mehsana, *Parmar* 5777 (BSJO).

Ipomoea pallida Santapau & Patel

Dharoi dam, *Parmar* 21707 (BSJO).

Ipomoea pes-tigridis L.

Mehsana, *Parmar* 8261 (BSJO); Kadi, *D.V. Yogi* 2047 (SPU).

Ipomoea plebeia R. Br. subsp. **indica** Verdcourt

Becharaji, *Parmar* 21657 (BSJO).

***Ipomoea quamoclit* L.**

Taranga hills, *Parmar* 8263 (BSJO); Kadi, *D.V. Yogi* 2254 (SPU).

***Ipomoea sindica* Stapf**

Dharoi dam, *Parmar* 12964 (BSJO).

***Ipomoea sinensis* (Desr.) Choisy**

Mehsana, *Parmar* 5773 (BSJO).

***Ipomoea triloba* L.**

Near Mehsana, *Parmar* 21642 (BSJO).

***Ipomoea turbinata* Lag.**

On the way to Becharaji, *Parmar* 21652 (BSJO).

***Merremia aegyptia* (L.) Urb.**

On the way to Becharaji, *Parmar* 21647; Kheralu, *Parmar* 8295 (BSJO); Becharaji, *Peerzada & party* 18725 (LWG).

***Merremia dissecta* (Jacq.) Hallier f.**

Kadi, *D.V. Yogi* 2040 (SPU).

***Merremia emarginata* (Burm. f.) Hallier f.**

Dharoi dam, *Parmar* 12547; Thol bird sanctuary, *Parmar* 21769; Kanjari, near Kadi, *Parmar* 12992 (BSJO).

***Rivea hypocrateriformis* (Desr.) Choisy**

Vijapur ravines forest, *Parmar* 12591 (BSJO).

***Xenostegia tridentata* (L.) D.F. Austin & Staples var. *hastata* (Desr.) Parmar**

Nugal village, *Parmar* 21778; On the way to Becharaji, *Parmar* 21648 (BSJO); Kadi, *D.V. Yogi* 2042 (SPU).

CUSCUTACEAE***Cuscuta chinensis* Lam.**

Near Mehsana, *Parmar* 5783; Rantej village, *Parmar* 19259, 21741 (BSJO); Kadi, *D.V. Yogi* 2663, (SPU).

***Cuscuta reflexa* Roxb.**

Near Taranga hills, *Parmar* 21691 (BSJO).

SOLANACEAE***Datura fastuosa* L.**

Taranga hills, *Parmar* 21687; near Becharaji, *Parmar* 21732 (BSJO).

***Datura innoxia* Mill.**

Dasaj, Near Unja, *Parmar* 12916 (BSJO); Dabhola village, *Parmar* 19220 (BSJO).

***Physalis longifolia* Nutt.**

Near Dabhola village, *Parmar* 19210 (BSJO).

***Physalis micrantha* Link**

Taranga hills, *Parmar* 8092; Dharoi dam, *Parmar* 21715 (BSJO).

***Physalis divaricata** D. Don

Weed in waste places, Vishnagar.

Solanum incanum L.

Modhera, *Parmar* 19297; Dabhola village, *Parmar* 19217 (BSJO); Kadi, *D.V. Yogi* 2038 (SPU).

Solanum nigrum L.

Meetha gam, on the way to Becharaji, *Parmar* 21717; Umta village, *Parmar* 8286 (BSJO).

Solanum virginianum L.

Dharoi dam, *Parmar* 12576 (BSJO).

***Withania somnifera** (L.) Dunal

In waste places, Vishnagar.

SCROPHULARIACEAE

Bacopa monnieri (L.) Wettst.

Dharoi dam, *Parmar* 21711; Near Becharaji, *Parmar* 19260; Pilwa village, *Parmar* 21629 (BSJO).

Limnophila indica (L.) Druce

Kanjari, near Kadi, *Parmar* 12999 (BSJO).

Lindenbergia indica Vatke

Dharoi dam, *Parmar* 12548 (BSJO).

Lindernia ciliata (Colsm.) Pennell

Taranga hills, *Parmar* 12933 (BSJO).

Lindernia crustacea (L.) F. Muell.

Taranga hills, *Parmar* 12935 (BSJO).

Lindernia parviflora (Roxb.) Haines

Kanjari, near Kadi, *Parmar* 12998 (BSJO).

Peplidium maritimum (L.f.) Asch.

Taranga hills, *R.P. Bhatt* 194 (BARO).

Stemodia viscosa Roxb.

Near Kanjari, *Parmar* 21771 (BSJO).

Striga angustifolia (D. Don) C.J. Saldhana

Taranga hills, *Parmar* 12934 (BSJO).

***Striga gesnerioides** (Willd.) Vatke ex Engl.

Along railway line, Vishnagar.

Veronica anagallis-aquatica L.

Near Mahudi, *D.V. Yogi* 703 (SPU).

BIGNONIACEAE

Kigelia africana (Lam.) Benth.

On the way to Dharoi dam, *Parmar* 19244 (BSJO).

PEDALIACEAE

Pedaliium murex L.

Taranga hills, *Parmar* 8093 (BSJO).

Sesamum indicum L.

Kheralu, *Parmar* 8297 (BSJO).

MARTYNIACEAE

Martynia annua L.

Near Mehsana, *Parmar* 5784 (BSJO).

ACANTHACEAE

Andrographis echioides (L.) Nees

Dharoi dam, *Parmar* 12958 (BSJO).

Barleria prionitis L.

Taranga hills, *Parmar* 12938 (BSJO).

Dicliptera leonotis Dalzell ex C.B. Clarke

Vishnagar, *Parmar* 21663 (BSJO).

Dicliptera paniculata (Forssk.) I. Darbysch.[=*Peristrophe paniculata* (Forssk.) Brummitt].

Umta village, *Parmar* 8284 (BSJO).

Elytraria acaulis (L.f.) Lindau

Dharoi dam, *Parmar* 12553; on the way to Modhera, *Parmar* 19289 (BSJO).

Hygrophila schulli (Buch.-Ham.) Almeida & Almeida

Kanjari near Kadi, *Parmar* 12990 (BSJO).

Hygrophila schulii (Hamilt.) M.R. Almeida & S.M. Almeida var. **alba** Parmar

Kanjari near Kadi, *Parmar* 12988 (BSJO).

Justicia adhatoda L.

Taranga hills, *Parmar* 21682 (BSJO).

Justicia japonica Thunb.

Kadi, *D.V. Yogi* 2251 (SPU).

Justicia quinqueangularis J. König ex Roxb.[=*Rostellularia quinqueangularis* (J.König. ex Roxb.) Nees].

Near Mehsana, *Parmar* 5791 (BSJO).

Lepidagathis bandraensis Blatt.

Kheralu, *Parmar* 21700 (BSJO).

Lepidagathis cristata Willd.

Dharoi dam, *Parmar* 12552 (BSJO).

Lepidagathis trinervis Wall. ex Nees

Dharoi dam, *Parmar* 12966 (BSJO).

Neuracanthus sphaerostachyus (Nees) Dalzell

Dharoi dam, *Parmar* 12972 (BSJO).

Rullea patula Jacq. [= *Dipteracanthus patulus* (Jacq.) Nees].

Aaithor V-2 gochar, Near Unja, *Parmar* 12918 (BSJO).

Rullea patula Jacq. var. **alba** Saxton [= *D. patulus* (Jacq.) Nees var. *alba* (Saxton) Bhandari].

Dharoi dam, *Parmar* 19228 (BSJO).

VERBENACEAE

Clerodendrum phlomidis L.f. [= *Clerodendrum multiflorum* (Burm.f.) Kuntze].

Kheralu R.F., *Parmar* 21676 (BSJO).

Glandularia aristigera (S. Moore) Tronc. (= *Verbena tenuisecta* Briq.)

On the way to Unja, *Parmar* 12911 (BSJO).

Gmelina philippensis Cham.

Kanjari, near Kadi, *Parmar* 21607 (BSJO).

Lantana camara L.

On the way to Unja, *Parmar* 12912; On the way to Unja, *Parmar* 12910 (BSJO).

Lantana rugosa Thunb. (= *L. salvifolia* Jacq.)

Taran hills, *Parmar* 12531 (BSJO).

Phyla nodiflora (L.) Greene

Thol bird sanctuary, *Parmar* 21800 (BSJO).

Vitex negundo L.

Dharoi dam, *Parmar* 12941 (BSJO).

LAMIACEAE

Anisochilus carnosus (L.f.) Wall.

Taranga hills, *Parmar* 12927 (BSJO).

Basilicum polystachyum (L.) Moench

Meetha gam, on the way to Becharaji, *Parmar* 21720; Paldi village, *Parmar* 12946 (BSJO).

Hyptis suaveolens (L.) Poit.

Vihar village, Vijapur, *Parmar* 12597 (BSJO).

Leucas aspera (Willd.) Link

Modhera, *Parmar* 21782 (BSJO).

Leucas cephalotes (Koen. ex Roth) Spreng.

Taranga hills, *Parmar* 12926 (BSJO).

Leucas urticifolia (Vahl) R. Br. ex Sm.

Karanjari, Kadi, *Parmar* 21603 (BSJO).

Ocimum americanum L.

Taranga hills, *Parmar* 8266 (BSJO).

Ocimum gratissimum L.

Near dabhola village, *Parmar* 19218 (BSJO).

***Ocimum tenuiflorum** L.

In waste places, Vishnagar.

Pogostemon plectrantoides Desf.

Taranga hills, *Parmar* 8096 (BSJO).

NYCTAGINACEAE

Boerhavia diandra L.

Dharoi dam, *Parmar* 12565 (BSJO).

Boerhavia diffusa L.

Dabhola village, *Parmar* 19215; on the way to Becharaji, *Parmar* 21643 (BSJO).

Boerhavia erecta L.

Near Dharoi dam, *Parmar* 19227; Dharoi dam, *Parmar* 12975 (BSJO).

Boerhavia procumbens Banks ex Roxb.

Taranmata R.F., *Parmar* 12508 (BSJO).

Boerhavia repens L.

Taran hills, *Parmar* 12528 (BSJO).

***Commicarpus chinensis** (L.) Heimerl

On hedges, along railway line, Vishnagar.

Commicarpus helenae (J. Schultes) Meikle

Dharoi dam, *Parmar* 12554 (BSJO).

AMARANTHACEAE

Achyranthes aspera L. var. **argentea** Hook. f.

Taranga hills, *Parmar* 8265 (BSJO).

Achyranthes aspera L. var. **rubro-fusca** (Wight) Hook. f.

Kheralu, *Parmar* 8294 (BSJO).

Alternanthera polygonoides R. Br. ex Roem. & Schult. (=A. *paronychioides* A. St. Hill.)

Vishnagar, *Parmar* 19265 (BSJO).

Alternanthera sessilis (L.) R. Br. ex DC.

Umta village, *Parmar* 8283 (BSJO).

Amaranthus graecizans L. subsp. **thellungianus** (Nevski ex Vassilcz.) Gusev

Meetha gam, on the way to Becharaji, *Parmar* 21719 (BSJO).

Amaranthus hybridus L. [=A. *hybridus* L. subsp. *cruentus* (L.) Thell. var. *paniculatus* (L.) Thell.].

Rantage village, *Parmar* 21740 (BSJO).

Amaranthus palmeri S.Watson

Kheralu, *Parmar* 8293 (BSJO).

Amaranthus spinosus L.

On the way to Unja, *Parmar* 12907; Umta village, *Parmar* 8288 (BSJO).

Amaranthus tricolor L.

Umta village, *Parmar* 8282 (BSJO).

Amaranthus viridis L.

Near Modhera, *Parmar* 19287; Becharaji, *Parmar* 12760 (BSJO).

Celosia argentea L.

Taranga hills, *Parmar* 12940 (BSJO).

Digera muricata (L.) Mart.

Thol bird sanctuary, *Parmar* 19207; Vishnagar, *Parmar* 5787 (BSJO).

Gomphrena celosioides Mart.

Near Dabhola village, *Parmar* 19216; Dharoi dam, *Parmar* 12561, 12963 (BSJO).

Nothosaerva brachiata (L.) Wight

Near Vishnagar, *Parmar* 21664; Meetha gam, on the way to Becharaji, *Parmar* 21723; Bad amali near Sabarmati river, Vijapur, *Parmar* 12731; Kuwasana village, *Parmar* 21636; Kanajari, *Parmar* 21604 (BSJO).

Pupalia lappacea (L.) Juss.

Dharoi dam, *Parmar* 12556 (BSJO).

CHENOPODIACEAE

Chenopodium album L.

Kheralu, *Parmar* 21678 (BSJO).

POLYGONACEAE

***Persicaria glabra (Willd.) M. Gomez**

On margin of tank, Vishnagar.

Polygonum plebeium R. Br. var. brevifolia Hook.f.

Dharoi dam, *Parmar* 12581 (BSJO).

Polygonum plebeium R. Br. var. griffithii Hook.f.

Rantej village, *Parmar* 21738 (BSJO).

Polygonum plebeium R. Br. var. indica (Heyne ex Roth) Hook.f.

Dharoi dam, *Parmar* 19240; Near Mahudi, *Parmar* 21748 (BSJO).

ARISTOLOCHIACEAE

***Aristolochia bracteolata Lam.**

Near Kadarapur railway station, Vishnagar.

LORANTHACEAE

Dendrophthoe falcata (L.f.) Ettingsch.

Taranmata R.F., *Parmar* 12511 (BSJO).

EUPHORBIACEAE

Acalypha ciliata Forssk.

Taranga hills, *Parmar* 8091 (BSJO).

Acalypha indica L.

Near Vishnagar, *Parmar* 21666; Rampura near Mehsana, *Parmar* 21624 (BSJO).

Chrozophora plicata (Vahl) A. Juss. ex Spreng.

Rantej village, *Parmar* 21735; Meetha gam, on the way to Becharaji, *Parmar* 21718 (BSJO).

Dalechampia scandens L. var. **cordofana** (Hochst. ex Webb.) Muell.Arg.

Charul Gochar, Kadi, *Parmar* 12741 (BSJO).

Euphorbia hirta L.

Dharoi dam, *Parmar* 12560 (BSJO).

Euphorbia hypericifolia L.

Umta village, *Parmar* 8290 (BSJO).

Euphorbia indica Lam.

Badmali, near Vijapur, *Parmar* 12732 (BSJO).

***Euphorbia neriifolia** L.

As hedges along fields, Vishnagar.

Euphorbia parviflora L.

Badmali, near Vijapur, *Parmar* 12734 (BSJO).

Flueggea leucopyrus Willd. [= *Securinega leucopyrus* (Willd.) Muell.-Arg.].

Charul Gochar, Kadi, *Parmar* 12746 (BSJO).

Jatropha gossypifolia L.

Near Vadnagar, *Parmar* 19245 (BSJO).

Phyllanthus amarus Schumach. & Thonn.

Thol bird sanctuary, *Parmar* 21795; Dharoi dam, *Parmar* 12562 (BSJO).

***Phyllanthus fraternus** G.L. Webster

Weeds in gardens and fallow fields, Vishnagar.

Phyllanthus maderaspatensis L.

Near Becharaji, *Parmar* 21734 (BSJO).

Phyllanthus reticulatus Poir. [= *Kirganelia reticulata* (Poir.) Baill.].

Taranmata R.F., *Parmar* 12515 (BSJO).

MORACEAE**Ficus amplissima** Sm.

Near Dharoi dam, *Parmar* 19243 (BSJO).

Ficus arnottiana Miq.

Taranga hills, *Parmar* 19221; Taran hills, *Parmar* 12535 (BSJO).

Ficus benghalensis L.

Taran hills, *Parmar* 12546; Becharaji, *Parmar* 12902 (BSJO).

Ficus microcarpa L.f.

Becharaji, *Parmar* 12903 (BSJO).

HYDROCHARITACEAE

Hydrilla verticillata (L.f.) Royle

Thol bird sanctuary, *Parmar* 21787; Dharoi dam, *Parmar* 21709 (BSJO).

Nechamandra alternifolia (Roxb. ex Wight) Thwaites

Dharoi dam, *Parmar* 19238 (BSJO).

Vallisneria natans (Lour.) H. Hara (= *V. spiralis* L. var. *denseserrulata* Makino)

Dharoi dam, *Parmar* 21708 (BSJO).

ZINGIBERACEAE

Curcuma inodora Blatt.

Taran hills, *Parmar* 12538 (BSJO).

ASPARAGACEAE

Asparagus racemosus Willd.

Taranmata R.F., *Parmar* 21698 (BSJO).

ASPHODELACEAE

***Asphodelus tenuifolius** Cav.

Vishnagar.

ANTHERICACEAE

Chlorophytum tuberosum (Roxb.) Baker

Taranga hills, *Parmar* 19222; Taranmata R.F., *Parmar* 12519 (BSJO).

COLCHICACEAE

***Gloriosa superba** L.

Along railway line, Vishnagar.

PONTEDERIACEAE

Eichhornia crassipes (Mart.) Solms

Anandpura village, *Parmar* 21634 (BSJO).

Monochoria vaginalis (Burm.f.) C. Presl

Kanjari, near Kadi, *Parmar* 21609 (BSJO); Kadi, *D.V. Yogi* 2041 (SPU).

COMMELINACEAE

***Commelina diffusa** Burm.f.

Vishnagar.

Commelina erecta L.

Taranga hills, *Parmar* 19224; Dharoi dam, *Parmar* 12558 (BSJO).

Commelina forsskalaei Vahl

Dabhola village, *Parmar* 19214; Near Unja, *Parmar* 12909 (BSJO).

TYPHACEAE

Typha domingensis Pers.

On the way to Becharaji, *Parmar* 21654 (BSJO).

LEMNACEAE

Spirodela polyrrhiza (L.) Schleid.

Paldi village tank, *Parmar* 12944 (BSJO).

ALISMATACEAE

Limnophyton obtusifolium (L.) Miq.

Kanjari near Kadi, *Parmar* 12991 (BSJO).

Sagittaria trifolia L.

Thol bird sanctuary, *Parmar* 27184 (BSJO).

POTAMOGETONACEAE

***Potamogeton nodosus** Poir.

In tanks along railway line, Vishnagar.

Potamogeton perfoliatus L.

Dharoi dam, *Parmar* 21710 (BSJO).

Stuckenia pectinata (L.) Borner (= *Potamogeton pectinatus* L.)

Dharoi dam, *Parmar* 19237 (BSJO).

NAJADACEAE

Najas indica (Willd.) Cham.

Kanjari, near Kadi, *Parmar* 12994 (BSJO).

CYPERACEAE

Bulboschoenus maritimus (L.) Palla

Kanjari near Kadi, *Parmar* 12997 (BSJO).

Courtoisina cyperoides (Roxb.) Sojak [= *Indocourtoisia cyperoides* (Roxb.) Bennet & Raizada].

Kanjari, near Kadi, *Parmar* 21611 (BSJO).

Cyperus alulatus I. Kern

Taranga hills, *Parmar* 12928 (BSJO).

Cyperus arenarius Retz.

Near Mahudi, *D.V. Yogi* 756 (SPU).

Cyperus bulbosus Vahl

Becharaji, *Parmar* 12761 (BSJO).

Cyperus compressus L.

Thol bird sanctuary, *Parmar* 19201; Kheralu, *Parmar* 8298 (BSJO).

Cyperus difformis L.

Kanjari near Kadi, *Parmar* 21612; Sapteshwar, *Parmar* 21749; Mumanwas, *Parmar* 12982 (BSJO).

Cyperus iria L.

Kadi, *D.V. Yogi* 22239 (SPU).

Cyperus iria L. var. **paniciformis** C.B. Clarke

Mumanwas, *Parmar* 12981 (BSJO).

Cyperus laevigatus L.

Vishnagar, *Parmar* 19266 (BSJO); Kadi, *D.V. Yogi* 2667 (SPU).

Cyperus niveus Retz.

On the way to Vijapur, *Parmar* 19280 (BSJO).

Cyperus michelianus Delile subsp. **pygmaeus** (Rottb.) Asch. & Graebn. (= *C. pygmaeus* Rottb.)

Near tank, Paldi village, *Parmar* 21674; Thol bird sanctuary, *Parmar* 21767, 21794; Dharoi dam, *Parmar* 21712 (BSJO).

Cyperus rotundus L.

Near Vishnagar, *Parmar* 19275; Dharoi dam, *Parmar* 21714, 12563, 12962 (BSJO).

Cyperus rotundus L. var. **centiflorus** C.B. Clarke

Thol bird sanctuary, *Parmar* 21765 (BSJO).

Cyperus squarrosus L. [= *Mariscus squarrosus* (L.) C.B. Clarke]

On the way to Becharaji, *Parmar* 21644 (BSJO).

Eleocharis atropurpurea (Retz.) Kunth

Kanjari near Kadi, *Parmar* 21610 (BSJO).

Eleocharis geniculata (L.) Roem. & Schult.

Near Mahudi, *D.V. Yogi* 79 (SPU).

Fimbristylis argentea (Rottb.) Vahl

Dharoi dam, *Parmar* 19236, 12575 (BSJO).

Fimbristylis bisumbellata (Forssk.) Bubani

Dharoi dam, *Parmar* 19236-A, 12577; Badmali, *Parmar* 12735 (BSJO).

Fimbristylis dichotoma (L.) Vahl

Dharoi dam, *Parmar* 19232 (BSJO).

Fimbristylis dichotoma (L.) Vahl subsp. **podocarpa** (Nees) T. Koyama

Narmada canal, near Kadi, *Parmar* 21752 (BSJO).

Fimbristylis quinquangularis (Vahl) Kunth

Near Becharaji, *Parmar* 21656 (BSJO).

Fimbristylis tenera Schult.

Near Mahudi, *D.V. Yogi* 124 (SPU).

Pycnus pumilus (L.) Nees ex Clarke

Narmada canal, near Kadi, *Parmar* 21757; Near Vijapur, *Parmar* 12984 (BSJO).

Schoenoplectiella articulate (L.) Lye [= *Schoenoplectus articulatus* (L.) Palla]

Dharoi dam, *Parmar* 21713 (BSJO).

Schoenoplectiella lateriflora (J.F. Gmel.) Lye [= *Schoenoplectus supinus* (L.) Palla subsp. *lateriflorus* (J.F. Gmel.) T. Koyama]

Near Kadi, *Parmar* 21755 (BSJO).

POACEAE

Acrachne racemosa (Heyne ex Roth) Ohwi

On the way to Vijapur, *Parmar* 19285; Kuwasana village, *Parmar* 21641 (BSJO).

Alloteropsis cimicina (L.) Stapf

Kadi, *D.V. Yogi* 883 (SPU).

Apluda mutica L.

Taranga hills, *Parmar* 8098 (BSJO).

Aristida adscensionis L.

On the way to Dharoi dam, *Parmar* 12952 (BSJO).

Aristida funiculata Trin. & Rupr.

Kheralu, *Parmar* 8300 (BSJO).

Arthraxon lancifolius (Trin.) Hochst.

Taranga hills, *Parmar* 8097 (BSJO).

Brachiaria setigera (Retz.) Stapf

Badamali, near Vijapur, *Parmar* 12733 (BSJO).

Cenchrus biflorus Roxb.

Charul Gochar, Kadi, *Parmar* 12751; on the way to Dharoi dam, *Parmar* 12951 (BSJO); Kadi, *D.V. Yogi* 1968 (SPU).

Cenchrus ciliaris L.

Dharoi dam, *Parmar* 12551; on the way to Vishnagar, *Parmar* 19283 (BSJO).

Cenchrus pennisetiformis Steud.

Kadi, *D.V. Yogi* 1982 (SPU).

Cenchrus setigerus Vahl

On the way to Becharaji, *Parmar* 21645; near Modhera, *Parmar* 19300; near Mehsana, *Parmar* 8274 (BSJO); Kadi, *D.V. Yogi* 1958 (SPU).

Chloris barbata Sw.

Narmada canal, near Kadi, *Parmar* 21754; Thol bird sanctuary, *Parmar* 21792; Dharoi dam, *Parmar* 12229 (BSJO).

Chloris radiata (L.) Sw. (= *C. virgata* Sw.)

Near Mehsana, *Parmar* 8273 (BSJO).

Crypsis alopecuroides (Pill & Mitt.) Schard. [= *Crypsis schoenoides* (L.) Lam.]

Kadi, *D.V. Yogi* 2748 (SPU).

Cymbopogon jwarancusa (Jones) Schult. [= *C. jwarancusa* (Jones) Schult. subsp. *oliveri* (Boiss.) S. Soenarko]

Taranmata R.F., *Parmar* 19271 (BSJO); Taranga hills, *Parmar* 12920 (BSJO).

Cynodon dactylon (L.) Pers.

Thol bird sanctuary, *Parmar* 21768; Dharoi dam, *Parmar* 12564 (BSJO).

Dactyloctenium aegyptium (L.) Willd.

On the way to Vishnagar, *Parmar* 19284; Charul Gochar, Kadi, *Parmar* 12753 (BSJO).

Dactyloctenium scindicum Boiss.

Charul Gochar, Kadi, *Parmar* 12754 (BSJO).

Desmostachya bipinnata (L.) Stapf

Thol bird sanctuary, *Parmar* 19203, 21785; Charul Gochar, Kadi, *Parmar* 12747 (BSJO).

Dichanthium annulatum (Forssk.) Stapf

Taranga hills, *Parmar* 12932 (BSJO).

Digitaria bicornis (Lam.) Roem. & Schult.

On the way to Vijapur, *Parmar* 19282 (BSJO).

Digitaria biformis Willd.

Mehsana, *Parmar* 8271 (BSJO).

Digitaria setigera Roth ex Roem. & Schult. [= *D. microbachne* (Presl.) Henrard]

Near Mehsana, *Parmar* 8279 (BSJO).

Dinebra retroflexa (Vahl) Panz.

Narmda canal, near Kadi, *Parmar* 21751; Pilwai village, *Parmar* 21631 (BSJO).

Echinochloa colona (L.) Link

Becharaji, *Parmar* 12762; Kanjari, near Kadi, *Parmar* 12993 (BSJO).

Echinochloa crusgalli (L.) P. Beauv.

Near Mehsana, *Parmar* 8278 (BSJO).

Echinochloa frumentacea Link

Thol bird sanctuary, *Parmar* 21799; on the way to Becharaji, *Parmar* 21650 (BSJO).

Enteropogon dolichostachys (Lag.) Keng (= *Chloris dolichostachya* Lag.)

Charul Gochar, Kadi, *Parmar* 12752; Taranga hills, *Parmar* 12929 (BSJO).

Eragrostis amabilis (L.) Hook. & Arn.

Near Mehsana, *Parmar* 19299; Dharoi dam, *Parmar* 12566; Taranga hills, *Parmar* 8100 (BSJO).

Eragrostis ciliaris (L.) R. Br.

Dharoi dam, *Parmar* 19233; on the way to Dharoi dam, *Parmar* 12954 (BSJO).

Eragrostis japonica (Thunb.) Trin.

Narmada canal, near Kadi, *Parmar* 21753 (BSJO).

Eragrostis riparia (Willd.) Nees

Kuwasana village, *Parmar* 21640 (BSJO).

Eriochloa procera (Retz.) C.E. Hubbard

Kanjari, near Kadi, *Parmar* 21613 (BSJO).

Heteropogon contortus (L.) P. Beauv. ex Roem. & Schult.

Taranga hills, *Parmar* 12931 (BSJO).

Melanocenchris jacquemontii Jaub. & Spach

Dharoi dam, *Parmar* 12967 (BSJO); Kadi, *D.V. Yogi* 1956 (SPU).

Panicum atrosanguineum Hochst. ex A. Rich.

Kanjari, near Kadi, *Parmar* 21614 (BSJO).

Panicum sumatrense Roth ex Roem. & Schult. (= *P. psilopodium* Trin.)

Charul Gochar, Kadi, *Parmar* 12750 (BSJO).

Panicum turgidum Forssk.

Paldi village, *Parmar* 12947 (BSJO).

Paspalum dissectum (L.) L. (= *P. vaginatum* Sw.)

Thol bird sanctuary, *Parmar* 21788; on the way to Dharoi dam, *Parmar* 12953 (BSJO).

Perotis hordeiformis Nees

Dharoi dam, *Parmar* 12969 (BSJO).

Perotis indica (L.) Kuntze

Kadi, *D.V. Yogi* 1967 (SPU).

Setaria verticillata (L.) P. Beauv.

Umta village, *Parmar* 8285 (BSJO).

Sporobolus coromandelianus (Retz.) Kunth

Kanjari, near Kadi, *Parmar* 21615 (BSJO).

Sporobolus helvolus (Trin.) Th. Dur. & Schinz

Thol bird sanctuary, *Parmar* 21793 (BSJO).

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REFERENCES

- BHARATI, S.G. 1959. A brief account of the flora of Vishnagar, North Gujarat and its environs. *J. Bombay nat. Hist. Soc.* 56: 588-610.
- SAXTON, W.T. 1922. Additional notes on the plants of North Gujarat. *Rec. Bot. Surv. India* 9: 251-262.
- SAXTON, W.T. AND L.J. SEDGWICK. 1918. Plants of North Gujarat. *Rec. Bot. Surv. India* 6(7): 209-323 & I-XIII.
- SHAH, C.K. 1963. The sedges of Sabarmati. *J. Guj. Univ.* 6: 179-186.
- SHAH, C.K. 1964. The flora of Taranga hills. *J. Orient. Institute* 1: 458-474.
- SHAH, C.K. 1964a. The vegetation of Taranga hills in Gujarat I. *Proc. Indian Sci. Congr. Abstr.* Pt.3: 441.
- SHAH, C.K. 1964b. The vegetation of Taranga hills in Gujarat- II. *Proc. Indian Sci. Congr. Abstr.*

मेहसाणा जिला, उत्तरी गुजरात के वनस्पतिजात

पी.जे. परमार

यह शोधपत्र मेहसाणा जिला, गुजरात की वनस्पति विविधता की वनस्पतिजातीय संरचना का विवरण प्रस्तुत करता है। इसमें 86 कुलों के अन्तर्गत 287 वंशों की 487 आवृतबीजी जातियाँ तथा दो टेरिडोफाइट जातियाँ हैं।