

A Checklist of Angiospermic Flora of Tinjure-Milke-Jaljale, Eastern Nepal

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Abstract

Tinjure–Milke–Jaljale (TMJ) area, the largest *Rhododendron arboreum* forest in the world, an emerging tourist area and located North-East part of Nepal. A total of 326 species belonging to 83 families and 219 genera of angiospermic plants have been documented from this area. The largest families are Ericaceae (36 species) and Asteraceae (22 genera). Similarly, the largest and dominant genus was *Rhododendron* (26 species) in the area. There were 178 herbs, 67 shrubs, 62 trees, 15 climbers and other 4 species of sub-alpine and temperate plants. The paper has attempted to list the plants with their habits and habitats.

Key words: alpine, angiospermic flora, conservation, rhododendron Tinjure-Milke-Jaljale

Introduction

The area of Tinjure-Milke-Jaljale (TMJ) falls under the middle Himalaya ranging from 1700 m asl to 5000 m asl, and geographically lies between 27°6'57" to 27°30'28" north latitude and 87°19'46" to 87°38'14" east longitude. It covers an area of more than 585 km² of three districts, Sankhuwasabha, Tehrathum and Taplejung in the Eastern Development Region of Nepal (EDRN) (Fig. 1). It is one of the longest mountain ridges in between the watersheds of Arun and Tamor rivers, running through the boarder of the three districts. It is important to note that TMJ area lies approximately between the highest peak of the world (Mount Everest) and the lowest point (Kechana) of the country. The aerial distance from Mt. Everest (8848 m) to Milke Danda is 97 km and from Kechana (70 m) is 110 km (IUCN 2002).

TMJ has different climates from warm temperate in the lower part to alpine in the upper hill slopes, which

determines overall biodiversity and development activities. With the increasing altitude, temperature is decreased and consequently different climatic zones within a sort vertical distance are found. The precipitation varies from 1000 to 2400 mm, and the average is about 1650 mm over the TMJ region. With the increasing altitude, rainfall is increased within the short vertical distance.

Land form range from moderately sloping, steeply sloping to very steeply sloping. Moderately sloping land is about 40% of the total area suitable for crop cultivation and human settlement. Forest area is more in the steeply sloping land. Forest is the largest category in terms of land-use 59% (340.13 km²) of the total land in TMJ which is followed by cultivated land occupies 24% (140.97 km²). The share of bush/shrub and grassland covers is 5% and 11% respectively. Other land viz. landslide and ponds cover only 0.4% of the total area (IUCN 2002).

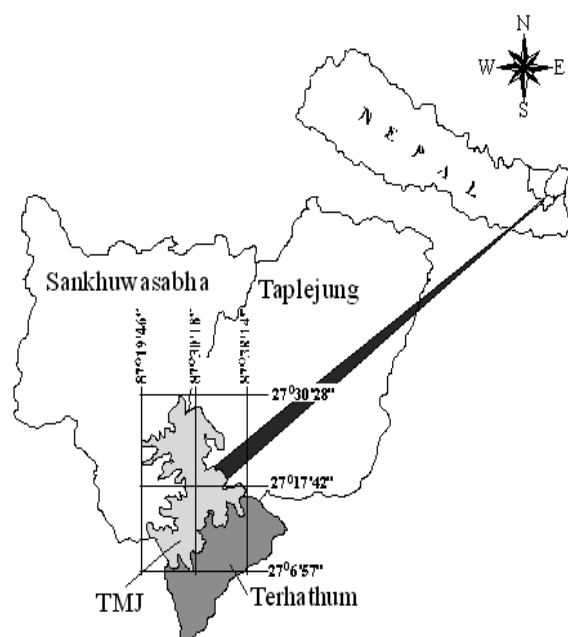


Fig. 1. Map of the study area, TMJ

TMJ area is the biodiversity treasure as well as considered as one of the important biological hotspot site of Nepal. It has high angiospermic floral diversity having 216 species according to IUCN, (2002) and 244 species according to Koirala & Limbu (2010). Similarly, it is considered as a biological corridor of Makalu Barun National Park and Kanchenjunga Conservation Area. The mountain ridges across TMJ are the natural niches for dozens of rhododendron species (Limbu, 2011). It is the home to 25 rhododendron species out of 30 species from Nepal (Chaudhary & Taylor 2000) that is why it is called the capital of rhododendron in Nepal. TMJ is known to host the greatest rhododendron occurrence in Nepal. The *Rhododendron arboreum* forests of Milke Danda is arguably the largest rhododendron forest in the world (Milleville 2002). Similarly, the site is rich in birds and mammalian fauna and considered as a breeding ground to endemic birds. Thus, the primary aim of this work was to make a checklist of angiospermic flora of TMJ area.

The conservation area of the TMJ area was formally initiated in the mid 1990s when IUCN Nepal launched natural resource management program in TMJ area. The Government of Nepal declared TMJ area as National Rhododendron Environmental Conservation Area (NRECA) under the Ministry of

Population and Environment in 1997 (MOPE 1997). IUCN has developed infrastructure and enhanced local level social awareness activities which are most essential for conservation. At present, IUCN completed 10 years project duration and handed over to Nepal government and Nepal Government did not take further initiation and allocation of budget for development of this area. Thus entire programmes are in standstill.

Methodology

The paper is based on the species collected during September 2010 and May 2011. Information was collected by making regular field visits and species were identified by using available literature (Watson *et al.* 2011, Press *et al.* 2000, Hara *et al.* 1978, 1982, Polunin & Stainton 2003, Stainton 2003, Hara & Williams 1979, The Plant List 2010, version 1). Plant collection route was Basantapur (2250m), Tute Deurali (2475m), Ghurbise (2660m), Pancha Pokhari (2850m), Tinjure (2900m), Phedi (267m), Chouki (2690m), Mangalabare (2635m), Shreemane, Bhalukhop, Lampokhari (2800m), Gupha (2890m), Jorpokhari (2905m), Milke (3016m), Lampokhari (Thadelung) (2880m), Khoping (3000m), Harkate (3200m), Dobate (3450m), Gorujure (3600m), Hile, Gidde, Manebhanjyang (3400m), Khambole (3500m), Gurgutte (Tree line 3850m asl), Thumki (3950m), Bhakari Chhiruwa (4000m) and Jaljale Pokhari (4100m asl). Attempt was made to enumerate the family, genera and species in alphabetical order with botanical names followed by local name, habit and habitat and presented in a tabular form. In case of collection and estimation of floral diversity of TMJ area, the allocated time period was short which did not allow to collect entire plant diversity. However, plant species were collected by the process of "Rapid Biological Assessments" (Primack 1998).

Results and Discussion

A total of 326 species belonging to 83 families and 219 genera of angiospermic plants have been documented from the TMJ proposed conservation area (Table 1). Out of these, 261 species belong to 70 families and 172 genera of dicotyledons whereas 65 species and 47 genera of 13 families of monocotyledons (Fig. 3). The largest families are Ericaceae (36 species), Asteraceae (30 species), Rosaceae (20 species), Poaceae (18 species),

Cyperaceae (10 species), Polygonaceae (9 species), Lamiaceae and Urticaceae (8 species) and Araceae, Lauraceae and Orchidaceae (7 species). On the basis of genera, the largest families are Asteraceae (22 genera), Poaceae (18 genera) and Rosaceae (11 genera). Similarly, the largest genera are *Rhododendron* (26 species), *Arisaema* and *Carex* (6 species), *Rubus* (5 species) and *Quercus*, *Anaphalis*, *Berberis* and *Persicaris* (4 species).

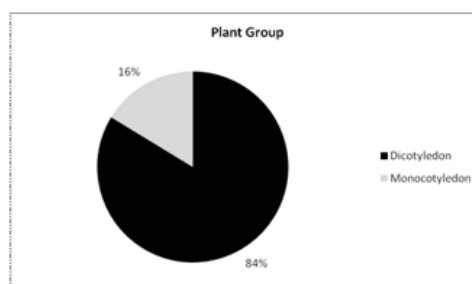


Fig. 3. Graphical representation of Plant's group of TMJ

Table. 1. Angiospermic flora of Tinjure-Milke-Jaljale area

Family Name	Scientific Name	Local Name	Habit
Dicotyledon			
Aceraceae	<i>Acer campbellii</i> Hook.f.	Kapase	Tree
Aceraceae	<i>Acer sterculiaceum</i> Wall.	Kukurpaile	Tree
Actinidiaceae	<i>Actinidia callosa</i> Lindl.	Thekiphal	Herb
Amaranthaceae	<i>Cyathula capitata</i> Moq.		Shrub
Anacardiaceae	<i>Rhus javanica</i> Miller	Bhakmilo	Tree
Apiaceae	<i>Acronema tenerum</i> (DC.) Edgew.		Herb
Apiaceae	<i>Centella asiatica</i> (L.) Urb.	Ghodtapre	Herb
Apiaceae	<i>Heracleum nepalense</i> D. Don	Chimphing	Shrub
Apiaceae	<i>Hydrocotyle nepalensis</i> Hook	Ghodtapre	Herb
Apiaceae	<i>Selinum tenuifolium</i> Wall. ex C. B. Clarke		Herb
Aquifoliaceae	<i>Ilex dipyrena</i> Wall.	Kande liso	Tree
Aquifoliaceae	<i>Ilex excels</i> (Wall.) Voigt	Puwale	Climber
Aquifoliaceae	<i>Ilex fragilis</i> Hook.f.	Liso	Tree
Araliaceae	<i>Hedera nepalensis</i> K.Koch	Pipal lahara	Climber
Araliaceae	<i>Schefflera elata</i> (Buch.-Ham.) Harms	Chinde patta	Shrub
Araliaceae	<i>Schefflera impressa</i> (C. B. Clarke) Harms	Bhalu Chide,	Tree
Asteraceae	<i>Ageratum conyzoides</i> (L.) L.	Ilamejhar	Herb
Asteraceae	<i>Anaphalis adnata</i> Wall. ex DC.	Bukiphool	Herb
Asteraceae	<i>Anaphalis contorta</i> (D.Don) Hook.f.	Bukiphool	Herb
Asteraceae	<i>Anaphalis margaritacea</i> (L.) Benth. & Hook. f.	Bukiphool	Herb
Asteraceae	<i>Anaphalis triplinervis</i> (Sims) C. B. Clarke	Bukiphool	Herb
Asteraceae	<i>Artemisia dubia</i> Wall.	Titepati	Shrub
Asteraceae	<i>Aster himalaicus</i> C. B. Clarke		Herb
Asteraceae	<i>Bidens biternata</i> (Lour.) Merr. & Sherff	kuro	Herb
Asteraceae	<i>Bidens pilosa</i> L.	Philungekuro	Herb
Asteraceae	<i>Centipeda minima</i> (L.) A. Br. & Asch.		Herb
Asteraceae	<i>Cirsium verutum</i> (D.Don) Spreng.		Herb
Asteraceae	<i>Cirsium wallichii</i> DC.	Sungur kande	Herb
Asteraceae	<i>Dichrocephala benthamii</i> C.B.Clarke		Herb
Asteraceae	<i>Dichrocephala integrifolia</i> (L.f.) Kuntze	Hachheu jhar	Herb
Asteraceae	<i>Dubyaea hispida</i> DC.		Herb
Asteraceae	<i>Engeron belidioides</i>		Herb
Asteraceae	<i>Eupatorium adenophorum</i> Spreng.	Banmara	Herb
Asteraceae	<i>Galinsoga ciliate</i> (Raf.) S.F.Blake		Herb
Asteraceae	<i>Galinsoga parviflora</i> Cav.	Udase	Herb
Asteraceae	<i>Gerbera nivea</i> (DC.) Sch. Bip.		Herb
Asteraceae	<i>Gnaphalium affine</i> D.Don		Herb
Asteraceae	<i>Inula cappa</i> (Buch.-Ham. ex D. Don) DC.		Shrub
Asteraceae	<i>Jurinea dolomitica</i> Galushko		Herb
Asteraceae	<i>Saussurea deltoidea</i> (DC) Sch. Bip.		Herb
Asteraceae	<i>Senecio alatus</i> Wall. ex DC.	Toriphoole	Herb

Asteraceae	<i>Senecio chrysanthemoides</i> Hook. & Arn.	Toriphoole	Herb
Asteraceae	<i>Siegesbeckia orientalis</i> L.		Herb
Asteraceae	<i>Spilanthes acmella</i> (L.) Murr.		Herb
Asteraceae	<i>Taraxum officinale</i> Webb	Thuki Phool	Herb
Asteraceae	<i>Vernonia cinerea</i> (L.) Less.		Herb
Balsaminaceae	<i>Impatiens puberula</i> DC.		shrub
Balsaminaceae	<i>Impatiens racemosa</i> DC.		Shrub
Begoniaceae	<i>Begonia picta</i> Sm.	Magar kanchi	Herb
Begoniaceae	<i>Begonia rubella</i> Buch.-Ham. ex D.Don	Magar kanchi	Herb
Berberidaceae	<i>Berberis aristata</i> DC.	Chutro	Shrub
Berberidaceae	<i>Berberis asiatica</i> Roxb. ex DC.	Chutro	Shrub
Berberidaceae	<i>Berberis erythroclada</i> Ahrendt	Lekh chutro	Shrub
Berberidaceae	<i>Berberis wallichiana</i> DC.	Chutro	Shrub
Berberidaceae	<i>Mahonia napaulensis</i> DC.	Jamane mandro	Shrub
Betulaceae	<i>Alnus nepalensis</i> D.Don	Uttis	Tree
Betulaceae	<i>Betula utilis</i> D.Don	Bhojpatra	Tree
Boraginaceae	<i>Cynoglossum zeylanicum</i> (Lehm.)Brand	Kuro	Herb
Brassicaceae	<i>Cardamine flexuosa</i> With.		Herb
Brassicaceae	<i>Rorippa nasturtium-aquaticum</i> Scop.	Simsag	Herb
Buxaceae	<i>Sarcococca hookeriana</i> Baill.	Chille kath	Shrub
Buxaceae	<i>Sarcococca saligna</i> (D. Don) Mull. Arg.	Chille kath	Shrub
Campanulaceae	<i>Campanula pallid</i> Wall.		Herb
Caryophyllaceae	<i>Drymaria cordata</i> (L.) Willd. ex Schult.	Abijalo	Herb
Caryophyllaceae	<i>Stellaria lanata</i> Hook. f.		Herb
Caryophyllaceae	<i>Silene</i> sp.		Herb
Caryophyllaceae	<i>Spergula arvensis</i> L.		Herb
Clusiaceae	<i>Hypericum choisanum</i> Wall. ex N. Robson		Shrub
Clusiaceae	<i>Hypericum elodeoides</i> Choisy		Shrub
Clusiaceae	<i>Hypericum japonicum</i> Thunb.		Herb
Corylaceae	<i>Corylus ferox</i> Wall.	Lekh katush	Tree
Cucurbitaceae	<i>Solena heterophylla</i> Lour.	Gol kakro	Climber
Dipsacaceae	<i>Triplostegia glandulifera</i> Wall. ex DC.		Herb
Elaeagnaceae	<i>Elaeagnus infondibularis</i> Momiy.	Mallido	Climber
Ericaceae	<i>Agapetes incurvata</i> (Griff.)Sleumer	Khursane	Herb
Ericaceae	<i>Agapetes serpens</i> (Wight) Sleumer	Khursane	Herb
Ericaceae	<i>Enkianthus deflexus</i> (Griff.) C.K.Schneid.	Ratmunthe	Tree
Ericaceae	<i>Gautheria fragrantissima</i> Wall.	Musikane	Herb
Ericaceae	<i>Gautheria nummularioides</i> D.Don	Mussikane	Shrub
Ericaceae	<i>Lyonia ovalifolia</i> (Wall.) Drude	Angeri	Tree
Ericaceae	<i>Lyonia villosa</i> (Wall.ex C.B. Clarke) Hand.-Mazz.		Tree
Ericaceae	<i>Pieris Formosa</i> (Wall.) D. Don	Bulu	Shrub
Ericaceae	<i>Rhododendron anthopogon</i> D. Don	Korlingo	Tree
Ericaceae	<i>Rhododendron arboretum</i> Sm.	Laiguras	Tree
Ericaceae	<i>Rhododendron barbatum</i> Wall. ex G. Don	Laliguras	Tree
Ericaceae	<i>Rhododendron camelliflorum</i> Hook. f.	Seto Chimala	Shrub
Ericaceae	<i>Rhododendron campanulatum</i> D.Don		Shrub
Ericaceae	<i>Rhododendron campylocarpum</i> Hook. f.		Tree
Ericaceae	<i>Rhododendron ciliatum</i> Hook. f.		Shrub
Ericaceae	<i>Rhododendron cinnabarinum</i> Hook f.	Lapbre gurans	Tree
Ericaceae	<i>Rhododendron dalhousieae</i> Hook. f.		Shrub
Ericaceae	<i>Rhododendron falconeri</i> Hook. f.		Tree
Ericaceae	<i>Rhododendron fulgens</i> Hook. f.		Tree
Ericaceae	<i>Rhododendron glaucophyllum</i> Rehder		Shrub
Ericaceae	<i>Rhododendron grande</i> Wight	Korlingo	Tree
Ericaceae	<i>Rhododendron hodgsonii</i> Hook. f.		Shrub
Ericaceae	<i>Rhododendron lepidotum</i> Wall. ex G. Don		Shrub
Ericaceae	<i>Rhododendron lindleyi</i> T. Moore	Chimal	Shrub
Ericaceae	<i>Rhododendron nivale</i> Hook. f.		Shrub

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Ericaceae	<i>Rhododendron pendulum</i> Hook. f.		Shrub
Ericaceae	<i>Rhododendron pumilum</i> Hook. f.		Shrub
Ericaceae	<i>Rhododendron setosum</i> D. Don		Shrub
Ericaceae	<i>Rhododendron thomsonii</i> Hook. f.		Shrub
Ericaceae	<i>Rhododendron triflorum</i> Hook. f.		Shrub
Ericaceae	<i>Rhododendron vaccinioides</i> Hook.		Shrub
Ericaceae	<i>Rhododendron virgatum</i> Hook. f.		Shrub
Ericaceae	<i>Rhododendron wallichii</i> Hook. f.		Shrub
Ericaceae	<i>Rhododendron wightii</i> Hook. f.		Shrub
Ericaceae	<i>Vaccinium retusum</i> (Griff.) Hook. f. ex C. B. Clarke	Mussikane	Shrub
Ericaceae	<i>Vaccinium vacciniaceum</i> (Roxb.) Sleumer	Sano Mussikane	Shrub
Euphorbiaceae	<i>Euphorbia wallichii</i> Hook. f.	Thuki Phool	Herb
Euphorbiaceae	<i>Ostodes paniculata</i> Blume	Bepari	Tree
Euphorbiaceae	<i>Phyllanthus clarkei</i> Hook. f.		Herb
Fabaceae	<i>Bauhinia variegata</i> L.	Taki	Tree
Fabaceae	<i>Erythrina stricta</i> Roxb.	Phaledo	Tree
Fabaceae	<i>Parochetus communis</i> D. Don		Herb
Fabaceae	<i>Piptanthus nepalensis</i> (Hook.) D. Don	Tite	Shrub
Fabaceae	<i>Trifolium repens</i> L.		Herb
Fagaceae	<i>Castanopsis hystrix</i> Hook. f. & Thomson ex A. DC.	Patle Katus	Tree
Fagaceae	<i>Castanopsis indica</i> (Roxb. ex Lindl.) A. DC.	Dhalne katus	Tree
Fagaceae	<i>Quercus lamellose</i> Sm.	Bajratha	Tree
Fagaceae	<i>Quercus lanata</i> Sm.	Bajratha	Tree
Fagaceae	<i>Quercus lineate</i> Blume	Phalat	Tree
Fagaceae	<i>Quercus semecarpifolia</i> Sm.	Khasru	Tree
Gentianaceae	<i>Gentiana ornate</i> (D.Don) Wall. ex Griseb.		Herb
Gentianaceae	<i>Swertia angustifolia</i> Buch.-Ham. ex D. Don	Bhale Chiraito	Herb
Gentianaceae	<i>Swertia chirayita</i> (Roxb. ex Fleming) H. Karst.	Chiraito	Herb
Gentianaceae	<i>Swertia pedicellata</i> Banerji	Bhale chiraito	Herb
Gentianaceae	<i>Tripterospermum volubile</i> (D. Don) H. Hara		Herb
Geraniaceae	<i>Geranium wallichianum</i> D. Don ex Sweet		Herb
Gesnenaceae	<i>Didymocarpus</i> sp.		Herb
Grossulariaceae	<i>Ribes griffithii</i> Hook. f. & Thomson		Shrub
Hydrangeaceae	<i>Dichroa febrifuga</i> Lour.		Shrub
Juglandaceae	<i>Engelhardia spicata</i> Lechen ex Blume	Mahuwa	Tree
Juglandaceae	<i>Juglans regia</i> L.	Okhar	Tree
Lamiaceae	<i>Ajuga lobata</i> D. Don		Herb
Lamiaceae	<i>Clinopodium umbrosum</i> (M.Bieb.) Kuntze		Herb
Lamiaceae	<i>Colebrookea oppositifolia</i> Sm.	Dhasure	Shrub
Lamiaceae	<i>Elsholtzia blanda</i> (Benth.) Benth.		Herb
Lamiaceae	<i>Elsholtzia strobilifera</i> (Benth.) Benth.		Herb
Lamiaceae	<i>Leucoscepttrum canum</i> Sm.	Ghurbis	Tree
Lamiaceae	<i>Mentha arvensis</i> L.	Pudina	Herb
Lamiaceae	<i>Prunella vulgaris</i> L.		Herb
Lardizabalaceae	<i>Holboelia latifolia</i> Wall.	Guphalo	Herb
Lauraceae	<i>Cinnamomum tamala</i> (Buch.-Ham.) T.Nees & Eberm.	Sinkauli	Tree
Lauraceae	<i>Dodecadnia grandiflora</i> Nees		Tree
Lauraceae	<i>Lindera neesiana</i> (Wall. ex Nees) Kurz	Siltimur	Tree
Lauraceae	<i>Lindera pulcherrima</i> (Nees) Hook. f.	Siss	Tree
Lauraceae	<i>Litsea monopelata</i> (Roxb.) Pers.	Kutmero	Tree
Lauraceae	<i>Neolitsea</i> sp.	Pootele	Tree
Lauraceae	<i>Persea glamblei</i> (King & Hook. f.) Kosterm.	Seto kaulo	Tree
Loranthaceae	<i>Viscum album</i> L.	Hadchud	Parasite
Magnoliaceae	<i>Magnolia campbellii</i> Hook. f. & Thomson	Ghoge chap	Tree
Magnoliaceae	<i>Michelia dolisopa</i> Buch.-ham. ex DC.	Rani chap	Tree

Melastomataceae	<i>Melastoma normale</i> D. Don	Chulesi	Shrub
Melastomataceae	<i>Osbeckia stellata</i> Buch.-Ham. ex Ker Gawl.	Ashare	Shrub
Melastomataceae	<i>Oxyspora paniculata</i> (D. Don) DC.	Bakhra kane	Shrub
Melastomataceae	<i>Sonerila tenera</i> Royle		Herb
Meliaceae	<i>Melia azederach</i> L.	Bakaina	Tree
Moraceae	<i>Ficus auriculata</i> Lour.	Nebharo	Tree
Moraceae	<i>Ficus nerifolia</i> Sm.	Dudhilo	Tree
Moraceae	<i>Ficus semicordata</i> Buch.-Ham. ex Sm.	Khaniyu	Tree
Moraceae	<i>Morus nigra</i> L.	Kimbu	Shrub
Myricaceae	<i>Myrica esculenta</i> Buch.-Ham. ex D. Don	Kaphal	Tree
Oleaceae	<i>Osmandthus suavis</i> King ex C.B. Clarke		Tree
Onagraceae	<i>Epilobium roseum</i> (Schreb.) Schreb.		Herb
Onagraceae	<i>Epilobium sikkimense</i> Hausskn.		Herb
Oxalidaceae	<i>Oxalis acetosella</i> L.	Chari amilo	Herb
Oxalidaceae	<i>Oxalis corniculata</i> L.	Chari amilo	Herb
Papaveraceae	<i>Corydalis cornuta</i> Royle		Herb
Papaveraceae	<i>Meconopsis aculeate</i> Royle		Herb
Phytolaccaceae	<i>Phytolacca acinosa</i> Roxb.	Jaringo	Herb
Plantaginaceae	<i>Plantago erosa</i> Wall.		Herb
Plantaginaceae	<i>Plantago major</i> L.		Herb
Polygonaceae	<i>Aconogonum molle</i> (D. Don) H.Hara	Thotne	Herb
Polygonaceae	<i>Bistorta amplexicaulis</i> (D. Don) Greene		Herb
Polygonaceae	<i>Persicaria alata</i> (Buch.-Ham. ex D. Don)	Ratnaulo	Herb
Polygonaceae	<i>Persicaria capitata</i> (Buch.-Ham. ex D. Don) H. Gross	Ratnaulo	Herb
Polygonaceae	<i>Persicaria chinensis</i> (L.) H. Gross	Ratnaulo	Herb
Polygonaceae	<i>Persicaria nepalensis</i> (Meisn.) Miyabe	Ratnaulo	Herb
Polygonaceae	<i>Rheum austral</i> D. Don	Padamchal	Herb
Polygonaceae	<i>Rumex crispus</i> L.	Halhale sag	Herb
Polygonaceae	<i>Rumex nepalensis</i> Spring.	Halhale	Herb
Primulaceae	<i>Primula calderiana</i> Balf. f. & Cooper		Herb
Ranunculaceae	<i>Aconitum heterophyllum</i> Wall. ex Royle	Attis	Herb
Ranunculaceae	<i>Aconitum spicatum</i> (Bruhl) Stapf	Bikhma	Herb
Ranunculaceae	<i>Clematis barbellata</i> Edgew	Jungelahara	Climber
Ranunculaceae	<i>Ranunculus hirtellus</i> Royle ex D. Don		Herb
Ranunculaceae	<i>Thalictrum</i> sp.		Herb
Rhamnaceae	<i>Rhamnus napalensis</i> (Wall.) M. A. Lawson	Chille kath	Shrub
Rosaceae	<i>Cotoneaster microphyllus</i> Wall. ex Lindl.	Theki Jhar	Shrub
Rosaceae	<i>Eriobotrya dubia</i> (Lindl.) Decne.	Jure kaphal	Tree
Rosaceae	<i>Fragaria daltoniana</i> J.Gay	Bhui Aiselu	Herb
Rosaceae	<i>Fragaria nubicola</i> Lindl. ex Lacaita	Bhui Aiselu	Herb
Rosaceae	<i>Geum elatum</i> Wall. ex G. Don	Mula pate	Herb
Rosaceae	<i>Geum sikkimense</i> Prain		Herb
Rosaceae	<i>Potentilla fruticosa</i> Hook. f.	Bajradanti	Herb
Rosaceae	<i>Potentilla fulgens</i> Wall. ex Hook.	Bajradanti	Herb
Rosaceae	<i>Potentilla lineate</i> Trev.	Bajradanti	Herb
Rosaceae	<i>Prunus cerasoides</i> D. Don	Paiyu	Tree
Rosaceae	<i>Prunus cornuta</i> (Wall. ex Royle) Steud	Arupate	Tree
Rosaceae	<i>Pyracantha crenulata</i> (D. Don) M. Roem.	Ghangaru	Shrub
Rosaceae	<i>Pyrus pashia</i> Buch.-Ham. ex D. Don	Mehel	Tree
Rosaceae	<i>Rosa sericea</i> Lindl.	JangaliGulab	Shrub
Rosaceae	<i>Rubus accuminatus</i> Sm.	Rato Aiselu	Shrub
Rosaceae	<i>Rubus biflorus</i> Buch.-Ham. ex Sm.		Climber
Rosaceae	<i>Rubus ellipticus</i> Sm.	Pahelo Aiselu	Shrub
Rosaceae	<i>Rubus foliolosus</i> D. Don	kalo Aiselu	Climber
Rosaceae	<i>Rubus paniculatus</i> Sm.	Rukha Aiselu	Climber
Rosaceae	<i>Sorbus</i> sp.		Shrub
Rubiaceae	<i>Galium acutum</i> Edgew.		Herb

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Rubiaceae	<i>Hymenopogon parasiticus</i> Wall.	Phirphire	Epiphyte
Rubiaceae	<i>Rubia manjith</i> Roxb. ex Fleming	Majitho	Climber
Rutaceae	<i>Euodia fraxinifolia</i> (D. Don) Hook. f.	Khanakpa	Tree
Rutaceae	<i>Skimmia</i> sp.	Gandhe	Tree
Rutaceae	<i>Zanthoxylum armatum</i> DC.	Timur	Shrub
Salicaceae	<i>Salix psilostigma</i> Anderson	Bais	Tree
Sambucaceae	<i>Sambucus adnata</i> Wall. ex DC.	Chanbhang	Herb
Sambucaceae	<i>Viburnum cotinifolium</i> D. Don	Baklo pate	Shrub
Sambucaceae	<i>Viburnum cylindricum</i> Buch.-Ham. ex D. Don	Ghodakhori	Tree
Sambucaceae	<i>Viburnum erubescens</i> Wall. ex DC.	Asare	Shrub
Sambucaceae	<i>Viburnum mullaha</i> Buch.-Ham. ex D. Don	Kabase	Shrub
Sambucaceae	<i>Viburnum nervosum</i> D. Don	Bhale gogan	Shrub
Santalaceae	<i>Osyris wightiana</i> Wall. ex Wight	Nundhiki	Shrub
Santalaceae	<i>Pyralia edulis</i> (Wall. ex Roxb.)	Amphi	Tree
Saururaceae	<i>Houttuynia cordata</i> Thunb.	Gardhe	Herb
Saurauiceae	<i>Saurauia nepaulensis</i> DC.	Gogan	Tree
Saxifragaceae	<i>Astilbe rivularis</i> Buch.-ham. ex D. Don	Budho okhati	Herb
Saxifragaceae	<i>Bergenia ciliate</i> (Haw.) Sternb.	Pakhanved	Herb
Saxifragaceae	<i>Saxifraga brachypoda</i> D. Don		Herb
Saxifragaceae	<i>Saxifraga diversifolia</i> Wall. ex Ser.		Herb
Saxifragaceae	<i>Saxifraga duthiei</i> Grand.		Herb
Schisandraceae	<i>Schisandra grandiflora</i> (Wall.) Hook. f. & Thomson	Sigauto	Climber
Scrophulariaceae	<i>Hemiphragma heterophyllum</i> Wall.		Herb
Scrophulariaceae	<i>Mazus japonicum</i> (Thunb.) Kuntze		Herb
Scrophulariaceae	<i>Mazus surculosus</i> D. Don		Herb
Scrophulariaceae	<i>Neopicrorhiza scrophulariiflora</i> (Pennell) D. Y. Hong	Kudki	Herb
Solanaceae	<i>Solanum aculeatissimum</i> Jacq.		Herb
Symplocaceae	<i>Symplocos pyrifolia</i> Wall. ex G. Don	Kholme	Tree
Symplocaceae	<i>Symplocos ramosissima</i> Wall. ex G. Don		Tree
Symplocaceae	<i>Symplocos theifolia</i> (Hayata) Hayata	Bakalapate	Tree
Theaceae	<i>Camellia kissi</i> Wall.	Hinguwa	Shrub
Theaceae	<i>Eurya acuminata</i> DC.	Jhinganu	Tree
Theaceae	<i>Eurya</i> sp.	Thulo Jhiganu	Shrub
Theaceae	<i>Schima wallichii</i> (DC.) Korth.	Chilaune	Tree
Thymelaeaceae	<i>Daphne bholua</i> Buch.-ham. ex D. Don	Lokta	Shrub
Thymelaeaceae	<i>Daphne papyracea</i> Wall. ex Steud.	Lokta	Shrub
Thymelaeaceae	<i>Edgeworthia gardneri</i> (Wall.) Meisn.	Argeli	Shrub
Urticaceae	<i>Boehmeria platyphylla</i> D. Don	Gargalo	Herb
Urticaceae	<i>Elatostema platyphyllum</i> Wedd.		Herb
Urticaceae	<i>Girardinia diversifolia</i> (Link) Friis	Allo	Shrub
Urticaceae	<i>Gonostegia hirta</i> (Blume) Miq.	Chiple	Herb
Urticaceae	<i>Laportea terminalis</i> Wight	Patle Sisnu	Herb
Urticaceae	<i>Leucanthus peduncularis</i> (Wall. ex Royle) Wedd.	Gagleti	Herb
Urticaceae	<i>Pilea umbrosa</i> Blume		Herb
Urticaceae	<i>Urtica dioica</i> L.	Sisnu	Herb
Valerianaceae	<i>Valeriana hardwickii</i> Wall.		Herb
Valerianaceae	<i>Valeriana jatamansii</i> Jones	Sugandhawal	Herb
Violaceae	<i>Viola biflora</i> L.		Herb
Violaceae	<i>Viola pilosa</i> Blume		Herb
Vitaceae	<i>Parthenocissus himalayana</i> (Royle) Planch.		Climber
Monocotyledon			
Alliaceae	<i>Allium hypsistum</i> Stearn	Jimbu	Herb
Alliaceae	<i>Allium wallichii</i> Kunth	Dungdunge	Herb
Amaryllidaceae	<i>Zephyranthes carinata</i> Herb.	Ban lasun	Herb
Araceae	<i>Acorus calamus</i> L.	Bojho	Herb
Araceae	<i>Arisaema concinnum</i> Schott	Bako	Herb

Araceae	<i>Arisaema erubescens</i> (Wall.) Schott.	Bako	Herb
Araceae	<i>Arisaema griffithii</i> Schott.	Sap ko makai,	Herb
Araceae	<i>Arisaema intermedium</i> Blume	Bako	Herb
Araceae	<i>Arisaema nepenthoides</i> (Wall.) Mart. ex Schott.	Bako	Herb
Araceae	<i>Arisaema propinquum</i> Schott.	Sap ko makai	Herb
Liliaceae	<i>Asparagus racemosus</i> Wall.	Kurilo	Climber
Commelinaceae	<i>Cyanotis axillaris</i> (L.) D. Don ex Sweet		Herb
Commelinaceae	<i>Commelina paludosa</i> Blume	Kane	Herb
Cyperaceae	<i>Carex foliosa</i> D. Don	Harkato	Herb
Cyperaceae	<i>Carex myosurus</i> Nees	Harkato	Herb
Cyperaceae	<i>Carex nubigena</i> D. Don	Harkato	Herb
Cyperaceae	<i>Carex rara</i> B.	Harkato	Herb
Cyperaceae	<i>Carex rochebrunii</i> Franch. ex Sav.	Harkato	Herb
Cyperaceae	<i>Carex setigera</i> D. Don	Harkato	Herb
Cyperaceae	<i>Fimbristylis aestivalis</i> (Retz.) Vahl		Herb
Cyperaceae	<i>Fimbristylis dichotomam</i> (L.) Vahl.		Herb
Cyperaceae	<i>Kobresia</i> sp.		Herb
Cyperaceae	<i>Pycreus sanguinolentus</i> (Vahl) Nees ex C. B. Clarke		Herb
Dioscoreaceae	<i>Dioscorea bulbifera</i> L.	Bhyagur	Climber
Dioscoreaceae	<i>Dioscorea esculenta</i> (Lour.) Burkill	Ban tarul	Climber
Iridaceae	<i>Amomum subulatum</i> Roxb.	Alainchi	Herb
Juncaceae	<i>Juncus leucanthus</i> Royle ex D. Don		Herb
Juncaceae	<i>Juncus ochraceus</i> Buchenau		Herb
Juncaceae	<i>Juncus wallichianus</i> Laharpe		Herb
Juncaceae	<i>Luzula plumose</i> E. May.		Herb
Liliaceae	<i>Campylandra aurantiaca</i> Baker		Herb
Liliaceae	<i>Clintonia udensis</i> var. <i>alpine</i> Trautv. & C. A. Mey.		Herb
Liliaceae	<i>Lillium nepalense</i> D. Don	Lili	Herb
Liliaceae	<i>Paris polyphylla</i> (Stearn) H. Hara	Satuwa	Herb
Liliaceae	<i>Polygonatum verticillatum</i> (L.) All.	Khiraula	Herb
Liliaceae	<i>Smilacina oleracea</i> (Bekar) Hook. f.	Khiraula	Herb
Liliaceae	<i>Smilacina purpurea</i> Wall.	Khiraula	Herb
Orchidaceae	<i>Coelogyne corymbosa</i> Lindl.		Herb
Orchidaceae	<i>Coelogyne punctulata</i> Lindl.	Sunkhari	Herb
Orchidaceae	<i>Dactylorhiza hatagirea</i> (D. Don) Soo	Pancha aule	Herb
Orchidaceae	<i>Pleione hookeriana</i> (Lindl.) J. Moore	Sunkhari	Epiphyte
Orchidaceae	<i>Pleione humilis</i> (Sm.) D. Don	Sunkhari	Epiphyte
Orchidaceae	<i>Satyrium nepalense</i> D. Don		Herb
Orchidaceae	<i>Spiranthes sinensis</i> (M. Bieb.) H. Hara		Herb
Poaceae	<i>Agrostis pilosula</i> Trin.		Herb
Poaceae	<i>Arundinaria maling</i> Gamble	Malingo	Herb
Poaceae	<i>Arundo donax</i> L.		Herb
Poaceae	<i>Capillipedium assimile</i> (Steud.) A. Camus	Kharuki	Herb
Poaceae	<i>Cynodon dactylon</i> (L.) Pers.	Dubo	Herb
Poaceae	<i>Danthonia schneideri</i> Pilg.		Herb
Poaceae	<i>Digitaria cruciata</i> (Nees ex Steud.) A. Camus	Banso	Herb
Poaceae	<i>Eragrostis nigra</i> Nees ex steud.	Banso	Herb
Poaceae	<i>Eulalia mollis</i> (Griseb.) Kuntze		Herb
Poaceae	<i>Helictotrichon parviflorum</i> (Hook. f.) Bor		Herb
Poaceae	<i>Imperata cylindrical</i> (L.) P. Beauv.	Siru	Herb
Poaceae	<i>Isachne miliacea</i> Roth		Herb
Poaceae	<i>Microstegium ciliatum</i> (Trin.) A. Camus		Herb
Poaceae	<i>Pennisetum cladrstrum</i> (Trin.) A. Camus	Kiku	Herb
Poaceae	<i>Poa annua</i> L.	Kode	Herb
Poaceae	<i>Setaria pumila</i> (Poir.) Roem. & Schult.		Herb

Poaceae	<i>Thamnocalamus spathiflorus</i> (Trin.) Munro	Nigalo	Shrub
Poaceae	<i>Thysanolaena maxima</i> (Roxb.) Kuntze	Amliso	Shrub
Smilacaceae	<i>Smilax aspera</i> L.	Kukurdaino	Climber
Zingiberaceae	<i>Hedychium spicatum</i> Sm.	Saro	Herb
Zingiberaceae	<i>Roscoea purpurea</i> Sm.	Bhui saro	Herb

The collected plants are not alpine flora because this work was carried out below 4100m asl altitude in Tinjure-Milke-Jaljale area. On the other hand, Japanese expedition teams had collected about 578 species of angiospermic alpine flora in 1972, 1977 and 1991 from alpine region of Jaljale Himal (Ohba & Akiyama 1992). There are only 72 species out of 326 species collected plants are re-reported in this work from the alpine flora of the Jaljale Himal.

Majority of the plants are herbaceous, there are 178 species of herbs, 67 species of shrubs, 62 species of trees, 15 species of climbers and other 4 species (Fig. 2). This work is not a complete report of angiospermic plants from Tinjure-Milke-Jaljale area. It needs more intense plant collection for a complete report.

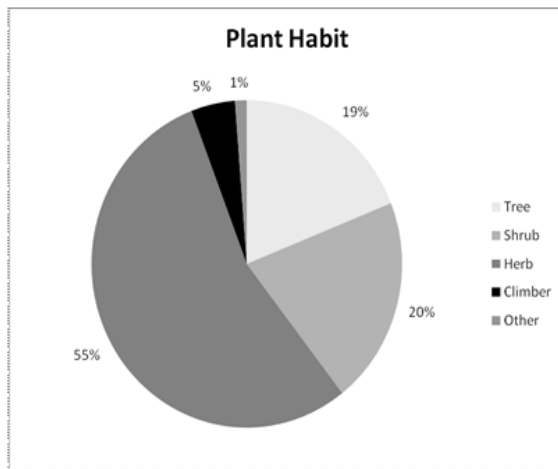


Fig. 2. Graphic presentation of plant's habit of TMJ

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