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Contents

Study of Six Selected Mangrove Plants in Myeik Coastal Line

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Abstract

Mangroves are various kinds of trees up to medium height and shrubs that grow in saline coastal sediment habitats in the tropics and subtropics mainly between latitudes 25˚ N and 25˚ S. Mangroves can be divided into two distinct groups: exclusive and non-exclusive. Local names and usefulness of the collected plants were gathered by interviewing with local people and by taking the photographs of these data. Mangrove extracts of Taninthayi coastal area are used in indigenous medicine; for example, the decoction fresh leaves of the nipa palm are used for indolent ulcers. Ash of roots and leave-sheath are used for headaches and toothaches. Bru*guiera species (*Byu-u-talon) is used as condiment and adhesive, and as an astringent medicine against diarrhea and malaria. *Sonneratia* species (Lamu) are used for salt-water piling and the seeds of (lame) are a source of resin and ointment for treading skin diseases and wounds. *Avicennia* species (Tha-mae) have tonic effect. The wood of *Ceriopstagal* (Madama-myaw) is used for tool handles and made firewood. Mangrove forests are extremely important coastal resources which are vital to rural socio-economic development.

Keywords: coastal, indigenous medicine, social-economic development

Introduction

Mangroves are commonly found throughout the world between latitudes 32˚ N and 38˚ S. Mangroves are a diverse group of unrelated trees, palms, shrubs, vines and ferns that share a common ability to live in waterlogged saline soils subjected to regular flooding. There are around 80 species of mangroves found throughout the world (Saenger*et al*., 1983). Most commonly they occur within tropical and subtropical sheltered coastal area subjected to tidal influences.

These mangroves are confined to intertidal areas and have not been found to exist within any other type of vegetation community. The remaining 20 plant species considered to be mangroves are referred to as non-exclusive. These plants are not restricted to the typical mangrove environment and are often found within drier, more terrestrial areas.

A vast majority of human population lives in coastal area, and most communities depend on local resources. The mangroves are sources of highly valued commercial products and fishery resources and also as sites for developing a burgeoning eco-tourism. Mangroves protect or reduce the erosion of coastlines and river banks. By acting as windbreak, mangrove can also reduce the force of winds that may destroy and damage property.

Mangrove is a source of timber, fuel, railroad ties and tannin in the tropics. In Asia, commercial mangrove production is necessary for the construction of boats, houses and furniture. Numerous mangrove plants are used in folklore medicine.

A wide range of terrestrial fauna is also found in mangroves and includes insects, snakes, frogs, and mammals such as possums, flying foxes and tiger. Mangrove forests have an important role in regulating carbon-dioxide in the global atmosphere through the processes of

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photosynthesis, whereby plant absorb carbon-dioxide store it in their biomass. There, another major ecological function of mangrove is to serve as a carbon sink.

Mangrove ecosystems that occur towards the land prevent soil erosion and also trap soil particles. This process helps in supply of clean and nutrient-rich water for the associated ecosystems like coral reefs, seaweeds and sea grass beds. However, when the mangroves are removed, the sediment becomes loose and gets deposited on those associated ecosystems and destroys them. Thus the mangroves provide protection to other marine ecosystems.

2. Materials and Methods

The present study is based on intensive field excursion. Careful preparations of questionnaires and interview, schedules regarding to the data collecting and studying in the sample, recording the photographs of these data selected area of Taninthayi coastal.

Plant specimens were collected, pressed, dried and identified by matching Herbarium specimens of Botany Department, Y.U and the variable references books.

3. Study Area

3.1 Location

Bordering Mon State in the north and Thailand in the south and east and facing Andaman Sea in the West, Taninthayi Region is situated between latitudes 9˚ 58′ north and 15˚ 16′ north in the southernmost part of Myanmar. The sea along Taninthayi coast is dotted with nearly 800 islands. Islands in the south are called Myeik archipelago. The Region's area is 16,735.5 square miles.

3.2 Topography

As Taninthayi Region is located in the eastern mountain range region, its landcape is mountainous. Generally, mountains with nearly 3,000 feet in height run from north-west to south-east. Some of the mountain ranges run into the sea and rise again as islands along the coast.

3.3 Climate

The average highest temperature of Myeik is 35.83˚ C and the lowest average temperature is 18.33˚ C. Annual average rainfall in Myeik is 162 inches and in Dawei is 215 inches.

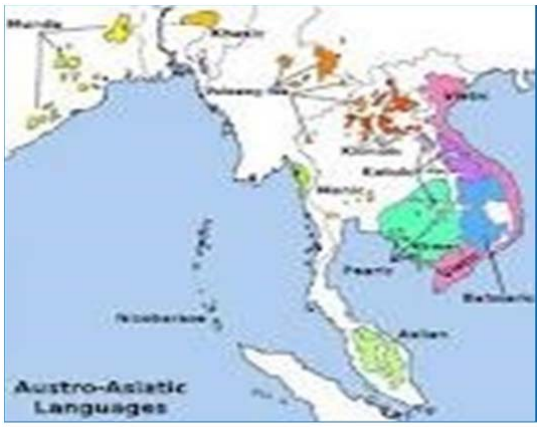

Fig.1. Location map of Myeik

4. Results

4.1 Scientific Name : *Nipafruticans*Wurmb.

Local Name : Da-ni

Family : Arecaceae

Parts Use : Leaves, inflorescences and fruits

Outstanding Characters

Shrub, aerial stems very thick, short; rhizomatous; in swampy saline soil along sea-shore, dominant. The flowers are a globular inflorescence of female flowers at the tip with catkin-like red or yellow male flowers on the lower branches. Leaves linear-lanceolate, acuminate. Inflorescences spathes, peduncle very short. Fruits head; drupelets.

Folk use

Nipa is one of the more commercially valuable plants in this area. The long, feathery leaves of the nipa palm are used by local populations as roof material for thatched houses or dwellings. The decoction fresh leaves of the nipa palm are used for indolent ulcers. Ash of roots and leave-sheath are used for headaches and toothaches. Jelly like sweetmeat from unripe endosperm is edible. *Nipa* ethanol (da ni ye) from the peduncle is drunk as beverage.

Fig.2.*Nipafruticans* Wurmb.

4.2 Scientific Name : *Bruguierasexangular(Lour.) Poir.Lamk.*

Local Name : Byu-u-talon

Family : Rhizophoraceae

Parts Use : Trunk, barks, leaves

Outstanding Characters

Small trees, up to 10m high; aerial roots form root buttresses and developed significantly the conical trunk base or broom like trunk with still roots base. Stems solid. Leaves simple, opposite and decussate; petiolate; lamina ovate-lanceolate, yellowish distinct mid-vein, the margin entire, the tip acute, coriaceous. Inflorescence solitary, large single flowered at the large pendulous cyme. Flowers are large, ebracteate, pedicelate, reddish or yellowish, pendulous. Sepals 12-16, polysepalous, yellowish, inconspicuously fleshy lobes.

Petals 10-12, polypetalous, bilobed, folding into one. Stamens 20-24, free,10-12 groups, 2 stamens into each folding petal, unequal filament, the base filament hairy, white. Pistil cup-shaped, 2-4 celled, two ovules in each locule, axile placentation, style terminal, stigma 3. Fruits capsule or berry, pendulous.

Folk use

The bark is suitable for tanning leather and fishing nets. The wood are withstand attacks by termites. The timber is used for firewood and charcoal, house posts, rafters, fishing stakes, and telegraph poles. The bark is used as condiment and adhesive, and as an astringent medicine against diarrhoea and malaria. The fruits are used as an astringent in betel quid when nothing better is available and they are used as an eye medicine. The leaves and peeled hypocotyls are eaten as vegetable after having been soaked in water and boiled.

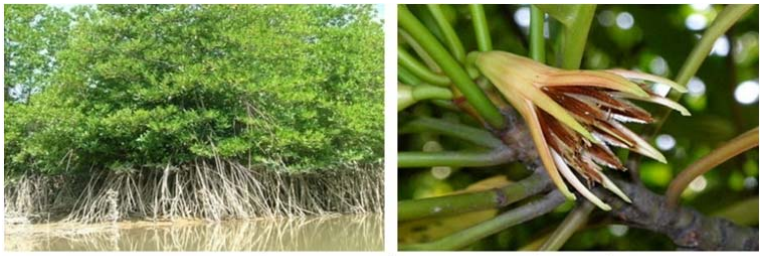

Fig.3. *Bruguierasexangular(Lour.) Poir.Lamk.*

4.3 Scientific Name : *Ceriopstagal* (Perr.) C.B. Robison.

Local Name : Madama-myaw

Family : Rhizophoraceae

Parts Use : Stem, branch and bark

Outstanding Characters

Small to moderate trees, aerial roots broom like, stem solid. Leaves opposite and decussate, simple. Inflorescence cymose. Flowers pentermerous, peduncle short, green, bisexual, regular, complete. Sepal 5, polysepalous, elliptic - lanceolate. Petal 5, polypetalous, oblong, white. Stamen 10, free, filament unequal, 5 short and 5 long, white. Carpel 3, syncarpous. Ovary inferior, elliptic globose, two locules, two ovules in each locule, axile placentation. Fruit capsule, single seeded.

Folk use

Its uses are similar to those for *C.decabdra* (Griffith) Ding Hou. The tannin is of high quality and the bark is important locally. Both bark and sap yield red dyes. The wood is used for tool handles and makes good firewood, but has been said to burn with too hot a flame for domestic use. It makes excellent charcoal. The boles are used as betel supporting poles, rafters and fishing stakes.

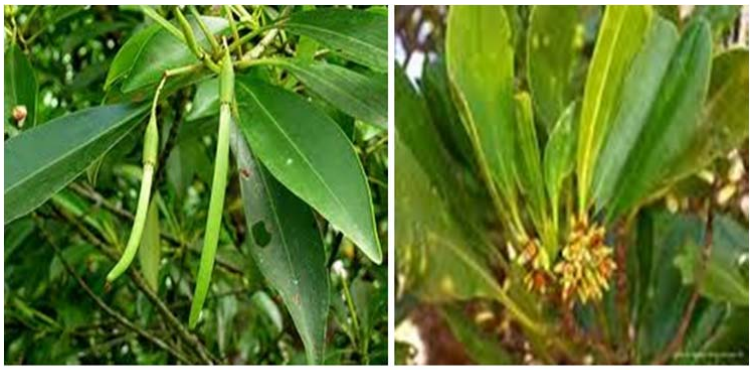

Fig.4.*Ceriopstagal* (Perr.) C.B. Robison.

4.4 Scientific Name : *Avicenniaofficinalis*L.
Local Name : Thame, Thame-net
Family : Avicennaceae
Parts Use : Leaves

Outstanding Characters

Medium to tall trees, 15m–20m high; pneomatophores numerous, long, spongy, pencil like erect. Leaves opposite and decussate, simple, exstipulate, lamina elliptic obovate, entire, glabrous. Infloresence compound spikes, with 10-12 flowers in each branch. Flowers complete, bisexual, dull yellow, hypogynous. Calyx 4, polysepalous, elliptical, entire, actue, pubescent, imbricate, persistent. Petals 4, gamopetalous, elliptical, orange yellow, deciduous. Stamens 4, epipetalous, anther dithecous, basifixed, longitudinally dehiscent. Carpel elliptical or slightly oblique, one locule, style one, stigma shortly 3-fid. Fruits fleshy, ovoid, flattened. Seeds single, dark green.

Folk use

Fruits edible. Wood used as fuel. Resin in bark used as contraceptive.

Fig.5. *Avicenniaofficinalis*L.

4.5 Scientific Name : *Sonneratiacaseolaris*(L.) Engl

Local Name : Lamu

Family : Lythraceae

Parts Use : Trunk

Outstanding Characters

Small evergreen trees, up to 8.0 m high; pneumatophores, tapering towards the ends. Leaves opposite and decussate, simple, exstipulate; leaves distinctly narrower than long, the margin entire, the tip acute, glabrous, coriaceous, fleshy. Inflorescence cyme, solitary or few flowered. Flowers ebrcteate, pedicellate, pale green, glabrous, solid. Calyx 6, gamosepalous, the tube green with 6 lobes, oblong-elliptic, inside the calyx lobes greenish, truncate, entire, acute, glabrous, coriaceous, valvate, persistent, flattish. Petals 6, polypetalous, linear-lanceolate, entire, acuminate, dark red, exserted, glabrous, valvate, deciduous. Stamens numerous, free, showy, filament about 4.0cm long, white above reddish below, glabrous; anther dithecous, about 0.1cm diam., yellow, dorsifixed, exserted, extrorse, longitudinal dehiscence. Carpel 6, syncarpus, ovary cup-shaped, globose, green, shining, flattened. 20-locules, numerous ovules in each locule, axile placentation, style terminal, glabrous, persistent, stigma capitate, about 0.2cm diam., glabrous. Fruits globose-berry, green, stalked, calyx flattish, scarcely enclosing fruits. Seeds numerous.

Folk use

The sour young flesh fruit is edible. Poor quality timber, but occasionally used to salt-water piling. When better firewood is not available, this wood is used.

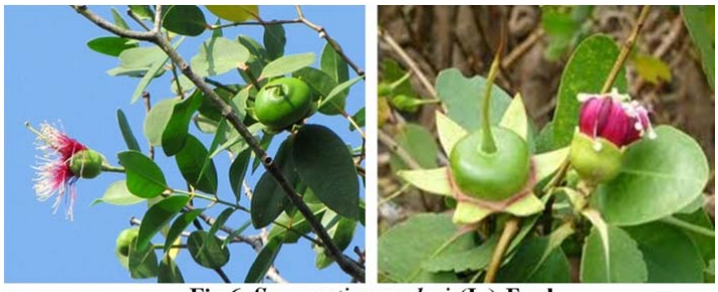

Fig.6. *Sonneratiacaseolaris*(L.) Engl

4.6 Scientific Name : *Sonneratiaalba*J.Smith.

Local Name : Lame

Family : Lythraceae

Parts Use : Trunk

Outstanding Characters

Shrub or small to medium trees, perennial, 10-25 m high; pneumatophores arranged linearly along with the horizontal roots, short. Leaves opposite and decussate, simple, exstipulate; petiole 1.5cm-2.0cm long, pulvinous, glabrous; laminalanceolateor linear, 10.5cm-12.5cm long and 1.5cm-3.5cm broad, the base cuneate, the margin entire, the tip acute, the upper surface whitish green or pale green, glabrous and the lower surface bright silvery or white or silvery grey with papillose, corisceous. Inflorescence raceme, 8-32 flowers in clustered, spikes 2.5cm-5.0cm long, branching opposite and decussate, bracteates, bracteole 0.25cm long. Flowers, sessile, dull yellow. Sepals 5 polysepalous, ovate 0.25cm-0.30cm long

and 0.1cm-0.15cm broad, entire, mucronate, coriaceous, pubescent, green, imbricate, persistent. Corolla 4, gamopetalous, tube short, lobed ovate, 0.40cm -0.45cm long and 0.20cm-0.25cm broad, orange yellow, entire mucronate, valvate. Stamens 4, up to 0.15cm long, epipetalous, anther dithecous, dorsifixed, introrse, exserted. Carpel 4, ovary about 0.2cm long, hairy, superior. Fruit conical, 2.0cm-4.0cm long tapering towards the apical portion.

Folk use

Firewood and low quality construction timber; sap used to prevent pregnancy. Seedlings are cooked and eaten as a vegetable. Seeds are a source of resin and ointment for treading skin diseases and wounds.

Fig.7. *Sonneratiaalba* J.Sm.

Discussion and Conclusion

The Mangrove ecosystem is an important ecosystem in tropical coastal shorelines and wetlands for so many flora and faunas. 32.68% of total mangroves of Myanmar were found in Taninthayi coast. The present study recorded twelve species that consist of woody trees, shrubs and climbers.

Regarding to the species composition in different mangrove ecosystems, *Acanthus ilicifolius*, *Nypafruticans* in the landward community, *Ceriopsdecandra*, *Avicenniaalba Xylocarpusgranatum* in on shore community, *Sonneratia alba* and *Avicennia alba* in near shore community.

Mangrove extracts are used in indigenous medicine; for example, *Avicennia*species (Tha-mae) have tonic effect. The wood of *Ceriopstagal* (Madama-myaw) is used for tool handles and makes good firewood. Mangrove is used as a source of timber, fuel and charcoal in Myeik region. Mangrove forests are extremely important coastal resources, which are vital to rural socio-economic development.

According to the report of Forest Department, Taninthayi Region, 10% of mangroves were annually deforested by the human impacts. Perhaps fish meal plants are one of the major causes of over exploitation leading to degrade the Myeik mangroves.

This study suggests that the contribution of fisheries activities is largely higher than that of logging and charcoal production. Therefore the management of mangroves ecosystem is a vital role as the natural conservation for a long term sustainable yield and should be emphasized on implementation of reforestation and contribution of knowledge to local people for awareness on value of mangroves community.

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