INTRODUCTION

Western Ghats of Karnataka are one of the mega biodiversities of the world. This state is endowed with great diversity of climate, soil and topography. Karnataka’s coast stretches for 320 kilometres along the three districts of Dakshina Kannada, Udupi and Uttara Kannada. Of these, 98 kilometres are in Udupi district. The coastal area is one of an important zone of the terrestrial ecosystem. The coastal habitats are typically known to harbor rich biodiversity. Udupi district having a land area that represents about 1/30 of 1% of India, it harbours about 6% of the indigenous plant species of India. Udyavara is an ancient port town located 5 km south of Udupi in the Indian state of Karnataka. The river Papanashini flows from east to west and turns north to separate Udyavara and Malpe. Medicinal Plants have been used as drugs for centuries in many traditional preparations. It is estimated that about 85% of traditional medicines used for primary health care globally are derived from medicinal plants.

With the increasing demand for herbal drugs, natural health products, and secondary metabolites of medicinal plants, the use of medicinal plants is growing rapidly throughout the world. A highly conservative estimate states that the current loss of plant species is between 100 and 1000 times higher than the expected natural extinction rate and that the earth is losing at least one potential major drug every two years.

Herbal potential in India facilitated rapid growth of phyto-pharmaceuticals, perfumery and allied industries. Destructive harvesting has brought about depletion and scarcity of medicinal plants. The habitat loss by export of medicinal plants collected from wild sources finally lead to severe and irreplaceable loss of genetic stock of many of these species. For medicinal plants with limited abundance and slow growth, destructive harvesting generally results in resource exhaustion and even species extinction. Hence the identified species were classified into different categories of red list.

METHODS

The plants were identified on the basis of daily survey conducted in certain areas of Udyavara Village. Authentication is done by referring standard flora and experienced taxonomist of Udupi District. The Endangered category of 276 identified species was explored by referring to IUCN red list, the most authoritative guide of biodiversity.
RESULT

The endangered plant species were explored from 276 identified plants of Udyavara village. The 80 plants were traced to have evaluated for its status, out of which 60 were least concerned, 4 were endangered, 5 were vulnerable, 3 near threatened, 1 conservation dependant and 7 Data deficient.

Table 1: The IUCN status of Ethno botanical plants of Udyavara

| BOTANICAL NAME                        | RED LIST CATEGORY         |
|---------------------------------------|---------------------------|
| Acacia auriculiformis Benth.          | LC, LR/Ic                 |
| Adenanthera pavonina L.               | LC, LR/Ic                 |
| Alstonia scholaris (L.) R. Br.        | LC, LR/Ic                 |
| Annona muricata L.                    | LC, LR/Ic                 |
| Annona squamosa L.                    | LC, LR/Ic                 |
| Artocarpus pubescens Wild.            | LC, LR/Ic                 |
| Azadirachta indica A.Juss.            | LC, LR/Ic                 |
| Bauhinia purpurea L.                  | LC, LR/Ic                 |
| Bauhinia tomentosa L.                 | LC, LR/Ic                 |
| Blumea lacera (Burm.f.) DC.            | LC, LR/Ic - Pan Africa; DD- Europe |
| Borassus flabellifer L.               | EN                        |
| Bougainvillea glabra Choisy           | LC, LR/Ic                 |
| Bremia vitis-idaea (Burm.f.) C.E.C.Fisch. | LC, LR/Ic                 |
| Bridelia retusa (L.) A.Juss.          | LC, LR/Ic                 |
| Butea monosperma (Lam.) Taub.         | DD                        |
| Caesalpinia pulcherrima (L.) Sw.      | LC, LR/Ic                 |
| Cajanus cajan (L.) Millsp.            | NT                        |
| Capsicum annuum L.                    | LC, LR/Ic                 |
| Carica papaya L.                      | DD                        |
| Caryota urens L.                      | LC, LR/Ic                 |
| Cassia fistula L.                     | LC, LR/Ic                 |
| Casuarina equisetifolia L.            | LC, LR/Ic                 |
| Cayratia pedata (Lam.) Gagnep.        | C Pedata-VU; C Pedata var glabra-CR |
| Centelia asiatica (L.) Urb.           | LC, LR/Ic                 |
| Ceiba pentandra (L.) Gaertn.          | LC, LR/Ic                 |
| Citrus maxima (Burm.) Merr.           | LC, LR/Ic                 |
| Colocasia esculenta (L.) Schott       | LC, LR/Ic                 |
| Commelina benghalensis Forssk.        | LC, LR/Ic                 |
| Crossandra infundibuliformis (L.) Nees| C I- LC, LR/Ic; C I sub sp- eglandulosa-VU |
| Croton oblongifolius Sieber ex Spreng | LC, LR/Ic                 |
| Curcuma longa L.                      | DD                        |
| Dalbergia latifolia Roxb.             | VU                        |
| Delonix regia (Hook.) Raf.            | LC, LR/Ic                 |
| Derris scandens (Roxb.) Benth.        | LC, LR/Ic                 |
| Ficus benjamina L.                    | LC, LR/Ic                 |
| Ficus hispida L.I.                    | LC, LR/Ic                 |
| Ficus racemosa L.                     | LC, LR/Ic                 |
| Garcinia indica (Thouars) Choisy      | VU                        |
| Gardenia gymnifera L.f.               | LC, LR/Ic                 |
| Gliricidia sepium (Jacq.) Walp.       | LC, LR/Ic                 |
| Glycosmis pentaphylla (Retz.) DC.     | LC, LR/Ic                 |
| Gymelina arborea Roxb.                | LC, LR/Ic                 |
| Species                                      | IUCN Status |
|----------------------------------------------|-------------|
| Hopea ponga Dennst.                           | EN          |
| Ipomoea batatas (L.) Lam.                    | DD          |
| Ipomoea cairica (L.) Sweet                   | LC, LR/Ic   |
| Jatropha curcas L.                           | EN          |
| Lagerstroemia indica L.                      | LC, LR/Ic   |
| Leea indica (Burm. f.) Merr.                 | LC, LR/Ic   |
| Leucaena leucocephala (Lam.) de Wit          | CD          |
| Magnolia champaca (L.) Baill. ex Pierre      | LC, LR/Ic   |
| Mangifera indica L.                          | DD          |
| Manihot esculenta Crantz                     | DD          |
| Melia azadirachta L.                         | LC, LR/Ic   |
| Mimosa pudica L.                             | LC, LR/Ic   |
| Mimusops elengi L.                           | LC, LR/Ic   |
| Nerium oleander L.                           | LC, LR/Ic   |
| Pennisetum polystachion (L.) Schult.         | LC, LR/Ic   |
| Physalis minima L.                           | P Minima- LC, LR/Ic; P minimaculata-VU |
| Pithecellobium dulce (Roxb.) Benth.          | LC, LR/Ic   |
| Plumeria rubra L.                            | LC, LR/Ic   |
| Pongamia pinnata (L.) Pierre                 | LC, LR/Ic   |
| Psidium guajava L.                           | LC, LR/Ic   |
| Pterospermum acerifolium (L.) Willd.         | NT          |
| Santalum album L.                            | VU          |
| Saraca asoca (Roxb.) Willd.                  | VU          |
| Senna alata (L.) Roxb.                       | LC, LR/Ic   |
| Spathodea campanulata P. Beauv.              | LC, LR/Ic   |
| Streblus asper Lour.                         | LC, LR/Ic   |
| Syzygium caryophyllatum (L.) Alston          | EN          |
| Syzygium cuminii (L.) Skeels                 | LC, LR/Ic   |
| Tabernaemontana alternifolia L.              | NT          |
| Tamarindus indica L.                         | LC, LR/Ic   |
| Tecoma stans var. sambucifolia (Kunth) J.R.I.Wood | LC, LR/Ic   |
| Terminalia catappa L.                        | LC, LR/Ic   |
| Thespesia populnea (L.) Sol. ex Corrèa       | LC, LR/Ic   |
| Trema orientalis (L.) Blume                  | LC, LR/Ic   |
| Vitex negundo L.                             | LC, LR/Ic   |
| Zingiber zerumbet (L.) Roscoe ex Sm.          | DD          |
| Ziziphus mauritiana Lam.                     | LC, LR/Ic   |
| Ziziphus oenopolia (L.) Mill.                | LC, LR/Ic   |

**Table 2:** Total number of species encountered

| IUCN Status          | Total Encountered |
|----------------------|-------------------|
| Least Concern (LC)   | 60                |
| Vulnerable (VU)      | 05+(02-variety)=07 |
| Endangered (EN)      | 04                |
| Data Deficient (DD)  | 07+(01-Other Habitat)=8 |
| Near Threatened (NT) | 03                |
| Critically Endangered (CR) | 00+(01- Variety)=01 |
| Conservation Dependant (CD) | 01               |
| **Total**            | 84                |
Pterospermum acerifolium (L.) Wild. (NT)

Tabernaemontana alternifolia L.

Leucaena leucocephala (Lam.) de Wit (CD)

Butea monosperma (Lam.) Taub. (DD)

Carica papaya L. (DD)

Curcuma longa L. (DD)

Ipomoea batatas (L.) Lam. (DD)

Mangifera indica L. (DD)

Manihot esculenta Crantz (DD)

Zingiber zerumbet (L.) Roscoe ex Sm. (DD)
DISCUSSION

Endangered species

1. *Borassus flabellifer* L: Tree, Stem up to 30 m high, when young covered with the dry leaves or the bases of the petioles. Frequent near the seacoast. Leaves are used for thatching. Wood is used in hut construction for rafters, pillars and posts. The pulp of the tender fruit is edible. The sap of the peduncle yields toddy. Leaf decoction is used as a gargle for toothache.

2. *Hopea ponga* Denst: A large trees. Common in forests, usually with spherical echinate axillary or extra-axillary galls. An excellent fuel wood. Timber is useful. Bark decoction and gum resin paste are used for rheumatism.

3. *Jatropha curcas* L: A large glabrous shrub. Bark greenish-white, smooth, peeling off in thin flakes. A native of Tropical America, usually grown as a hedge plant. The seeds are externally applied in herpetic, eczema and to cleanse the wounds, sores and ulcers.

4. *Syzygium caryophyllatum* (L.) Alston: A small tree or large shrub. Common in forests. Fruits edible. It regulates production of insulin. The seeds have gastro protective activities. The fruit is antiscorbutic in action.

Vulnerable species

1. *Caryota pedata* (Lam.) Gagnep: A large climber with forked tendrils. Occasionally seen along hedges. Whole plant except roots is used for cough, asthma and joint pain.

2. *Dalbergia latifolia* Roxb: A large tree. Heart wood is one of the most valued timbers. Bark decoction is recommended for urinary disorders, rheumatism and also as wound healer.

3. *Garcinia indica* (Thouars) Choisy: A slender tree with dropping branches. Frequent in evergreen and deciduous forests and also cultivated. The rind is used to prepare cooling beverages. It is also dried and used in curries. An edible fat called kokum butter is extracted from seeds.

4. *Santalum album* L: A small, glabrous tree, occasional in forests. The scented heartwood is used in carving, distillation of oil and in religious ceremonies. Chandana heartwood mixed with sugar and honey along with rice water one become free from burning sensation, thirst, diabetes and hemorrhage.

5. *Saraca asoca* (Roxb.) Willd: A small evergreen tree. Frequently cultivated in gardens. Bark is used in leucorrhoea, menorrhagia and complaints of menopause. Also as uterine tonic, used for dyspepsia, colic & burning sensation.

Data Deficient species

1. *Butanta montana alternifolia* L: A small deciduous tree. Common in distributed forests. The wood and stem bark showed CNS depressant and hypotensive activity.

Conservation Dependant species

1. *Leucaena leucocephala* (Lam.) de Wit: A large shrub or small tree. A tropical American species, often cultivated for fuel and forage. The roasted seeds are emollient. A decoction of the root and bark is abortifacient.

Near Threatened species

1. *Caesalpinia pulcherrima* (Lam.) Sw: A large shrub or small tree, branches unarmed or armed with small prickles. Probably a native of tropical America, extensively cultivated in gardens for their showy flowers. Oil prepared from leaf juice is used for burns and rheumatism.

2. *Pterospermum acerifolium* (L.) Willd: A large tree, cultivated in gardens. Flower relieves headache immediately. Charred flowers and bark mixed with powder of *Mallotus philippinensis* are applied to small pox eruptions.

3. *Tabernaemontana alternifolia* L: A small deciduous tree. Common in forests. The wood and stem bark showed CNS depressant and hypotensive activity.

The Deforestation, pollution and urbanization combine to form a circumstance where plan become endangered or extinct. The more and more land cleared for urbanizing the living space which shrinks the habitat for plant organism which in turn gives major impact for sustenance of animal living as well. An effort was made on Udyavara village of Udupi, resulted in 80 evaluated drugs categorized into different status. Around 60 were under Least Concern. The plants encountered under endangered species will guide the practitioner for its judicial use in medicine. Moreover the conservation of such plant species is possible by further cultivation of the same. The habitat base cultivation is more encouraged.
CONCLUSION

The resulted report provides objective guidelines in further propagation of habitat based plants in different places of the village. The scientific awareness created thereafter brings about judicial use of plant in medicinal and other purpose. Acting locally at the village and conserving the plant will surely bring about global health.

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Conflict of Interest

None declared.

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