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Research Article

An Annotated Check List of Ethno-medicinal Plants of Bangurnagar Degree College, Dandeli, Uttara Kannada

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ABSTRACT

Uttara Kannada district having one of the largest forest cover in Karnataka and Bangurnagar degree college, Dandeli, is one of the oldest colleges in Uttara Kannada District. The college is situated near to the Kali Tiger Reserve, Dandeli, which is famous for black panthers, leopards and tigers and floral diversity too. From evergreen forest to deciduous forest, the growing small town of Dandeli is surrounded by thick vegetation of several types of forests. The study area is also having local diversity and visited by birds and animals including Malabar giant squirrel, grey hornbills, Malabar great pied hornbills, peacock, snakes and foxes. As the floral diversity is well maintained by the college staff, campus is conserving 31 plant species of IUCN-RET category, a medicinal plant garden and local taxa. Some of the species with ethnomedicinal values are also being studied in the present floral inventory.

Keywords: Dandeli; Ethnomedicine; Floral diversity; Western Ghats; Uttara Kannada

1 INTRODUCTION

Western Ghats of Karnataka is a home for several important plants economically and medicinally used by various folk communities for their health care. In Uttara Kannada district of Karnataka more than 70% of the land is covered by the forest and have importance for the natural resources. Hence it is under immense threat to be converted into agricultural or barren lands because of the non-forestry activities. Dandeli is well known place in Uttara Kannada which is declared by the government as a Kali Tiger Reserve and also because of the river Kali where the tourism activities are high. From evergreen forest to deciduous forest, the growing small town of Dandeli is surrounded by thick vegetation of several types of forests [1]. DES's Bangurnagar Degree College, the first and oldest of the city is established by the West Coast Paper Mills Pvt. Ltd. for the education and development of the city's growing population, is a diadem to the town of Dandeli, maintaining and nurturing the town's flora in its campus. The plant wealth is the rich source of herbal medicine, agriculture and industries, needs to be conserved for the future generation. Without the knowledge of floral composition, sustainable conservation becomes difficult task. Hence the present study was undertaken to prepare a check list of few important medicinal species found in the campus of Bangurnagar Arts, Science and Commerce College, Dandeli.

2 MATERIALS AND METHODS

2.1 Description of the study area

Dandeli is a large historic town in the Uttara Kannada district of Karnataka located 27 miles from Supa Dam reservoir. There are about more than 55,000 people in the town. Bangurnagar Degree College, situated in Dandeli is selected for the present floristic study on ethno-medicinal plants species in the year 2017. Selection was made because no literature available about the floristic diversity. The study area is situated at 14.9564°-15.33227°N latitude and 74.2521°-74.7196°E longitude, covering total area of 14 acres with an average elevation of 472meters, composed of lateritic soils, clayey rich in humus and well drained. The average rainfall around 2500mm per annum and the temperature varies from 13°C to 37°C, January and February being

coldest and April and May being the warmest.

2.2 *Data collection*

Field visits (2019-2022) were undertaken including the data on medicinal plants were gathered through interactions with local herbal healers and old villagers of the study area in the course of ethno- medical explorations. The plants mentioned were authentically identified [2, 3], enumerated using The Plant List (www.theplantlist.org/), the World Flora Online (www.worldfloraonline.org/), International Plant Name Index (IPNI), Flowers of India (www.flowersofindia.net) and their herbarium specimens are maintained in Department of Botany, Bangurnagar Degree College, Dandeli for future reference and study. The plant species collected were arranged as per the Angiosperm Phylogeny Group IV classification [4]. The references were also sought to provide information on endemic and RET status of the species documented in the study area [5].

3 RESULTS AND DISCUSSION

Floristic diversity especially on ethno-medicinal plants of the study area was done during the year July 2019 to July 2022. The plants species identified during the study were enlisted alphabetically according to APG IV system of classification with the taxonomic ranks of family and species (Table 1). The information such as local name, conservation status, parts used and medicinal uses are also mentioned. A total of 103 species were listed from the study area belonging to 51 families. Among them 12 species belongs to Fabaceae, 10 species belongs to Apocynaceae and 6 species each belongs to Acanthaceae and Malvaceae. Some genera were collected from the forest and planted in the garden. Some are naturally present in the campus of which few are seasonal. Mixture of moist deciduous and semi- evergreen forest types near the vicinity of the college campus was observed, however the floristic composition shows much diversification.

Ethno-medicinal uses reported from the Uttara Kannada district as well as Dandeli Taluk [3, 6–9] for enlisted plants have been provided and it has been found that 63 species out of documented 103 are medicinal, few are ornamental. Different parts like, bark, stem, root, leaves, flowers, fruits and seeds are used to treat human and cattle health disorders. During the study, interacted with 12 local healers among which 3 were women and 9 were men who practice and serve the society with their traditional knowledge. These healers work as a daily vagers for the purpose of their daily needs of life.

The college also can be a small gene bank for the conservation of RET species as well as for some of the important medicinal species found in the proximity of the region. So the college campus is holding good diversity of medicinal plants along with the conservation work are also been carried out to enhance the knowledge of the students studying in the campus as well as for the society. Among all the species documented, 31 species are listed by IUCN under RET category. The species *Santalum album* (Figure 1 A), *Saraca asoca* (Figure 1 B), *Dalburgia latifolia* (Figure 1 C), *Garcinia indica* (Figure 1 F), *Vateria indica* (Figure 1 G) are vulnerable globally, and their natural population is in a decreasing trend.

During the floristic inventory it was found that the study area is well fenced and surrounded by the city and West Coast Paper Mills and other side by the Acacia plantation. Still the campus is holding local diversity and also participating in conservation of RET species, because of the participation of the staff and students in conservation programmes in college and discipline maintained by the authority, it is need of the society to conserve.

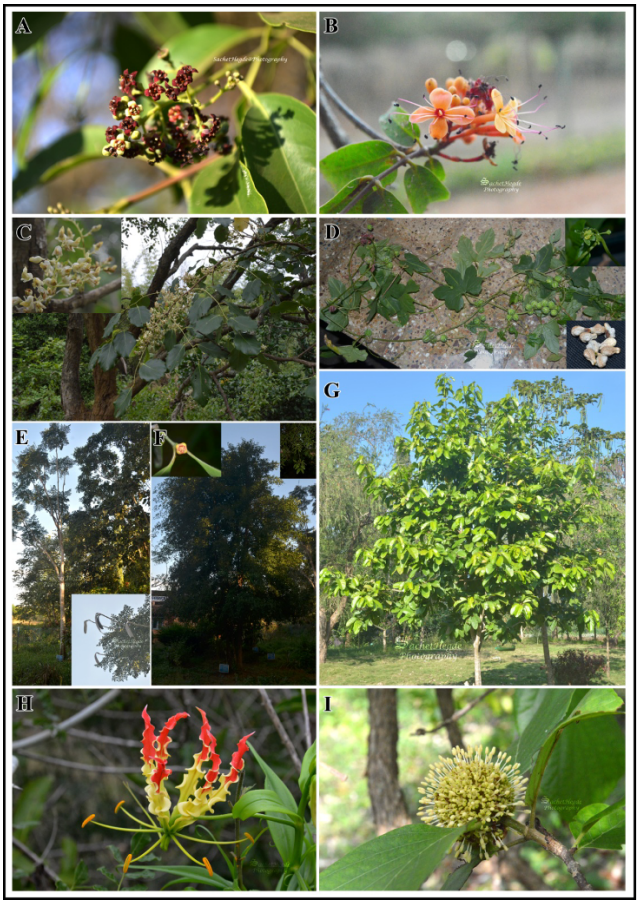

Figure 1: A- Flowering twig of *Santalum album*; **B**- Flowering twig of *Saraca asoca*; **C**- Habit and enlarged view of inflorescence of *Dalburgia latifolia*; **D**- Habit, enlarged Flower and Seeds of *Diplocyclos palmatus*; **E**- Habit and enlarged view of Fruits of *Oroxylum indicum*; **F**- *Garcinia indica* Habit and flower and twig enlarged; **G**- Habit of *Vateria indica*; **H**- Flower of *Gloriosa superba*; **I**- Flowering twig of *Neolamarckia cadamba*.

Table 1: Check list of plant species from Bangurnagar Degree College, Dandeli campus.

Family and Species	Local Name	Conservation status	Parts used	Ethno-medicinal uses
Acanthaceae *Ruellia tuberosa* L.	Chatpati kayi gida	NE	Tuber	Inflammation, whooping cough
Acanthaceae *Barleria cristata* L.	Mullugoranta	NE	Whole plant	Toothache, rheumatism and inflammation
Acanthaceae *Crossandra infundibuliformis* (L.) Nees	Kanakambara	LC	Flowers	Healing wound, headache and fever
Acanthaceae *Pseuderanthemum carruthersii* (Seem.) Guillaumin	Beli mallige	NE	Leaves	Healing wounds and treating inflammation
Acanthaceae *Asystasia gangetica* (L.) *T. Anderson*	Maithala	NE	Whole plant	Rheumatism
Acanthaceae *Andrographis paniculata* (Burm.f.) Nees	Kirathkaddi	NE	Whole plant	Vermifuge, diabetes and liver tonic
Amaranthaceae *Alternanthera sessilis* (L.) R.Br. ex DC.	Honagonne	N E	Whole plant	Lung troubles
Amaryllidaceae *Crinum asiaticum* L.	Nagadali	NE	Whole plant	Earache and urinary problems
Anacardiaceae *Mangifera indica* L.	Maavinamara	NE	Leaves	Toothache and bad breath of mouth
Annonaceae *Polyalthia longifolia* (Sonn.) Thwaites	Kambadamara	NE	___	Ornamental
Apiaceae *Centella asiatica* (L.) Urb.	Ondelaga	LC	Whole plant	Stomach related problems
Apocynaceae *Catharanthus roseus* (L.) G.Don	Nityapushpa	NE	Root	Snake bite
Apocynaceae *Calotropis gigantea* (L.) Dryand.	Ekkadagida	NE	Leaf and root	herpes
Apocynaceae *Tabernaemonta nadivaricata* (L.) R.Br. ex Roem. & Schult.	Nandibatlu	LC	Leaf	Boils
Apocynaceae *Cascabela thevetia* (L.) Lippold	Kanagilegida	LC	Leaf	Wound healing
Apocynaceae *Rauvolfia serpentina* (L.) Benth. ex Kurz	Garudapataala, sarpagandha	NE	Root	Herpes and scabies
Apocynaceae *Rauvolfia tetraphylla* L.	Doddachandrike	LC	Root	Poisonous bites
Apocynaceae *Allamanda cathartica* L.	Haladialamanda	NE	___	Ornamental
Apocynaceae *Hemidesmus indicus* (L.) R. Br. ex Schult.	Anantamuula	NE	Leaves and root	Diuretic
Apocynaceae *Gymnema sylvestre* (Retz.) R.Br. ex Sm.	Madhunashini	NE	Leaves	Diabetes
Apocynaceae *Tylophora asthmatica* (L. f.) Wight &Arn.	Aadumuttadaballi	NE	Leaf	Cough and lung related problems
Arecaceae *Roystonea regia* (Kunth) O.F.Cook	Royal palm	NE	___	Ornamental
Asparagaceae *Sansevieria roxburghiana* Schult. & Schult.f.	Hegguratige	NE	___	Ornamental
Balsaminaceae *Impatiens balsamina* L.	Gourihoo	NE	___	Ornamental
Bignoniaceae *Markhamia lutea* (Benth.) *K. Schum.*	Gold markhamia	LC	____	Ornamental
Bignoniaceae *Millingtonia hortensis* L.f.	Akashamallige	NE	_____	Ornamental
Bignoniaceae *Spathodea campanulata P. Beauv.*	Neerukayi mara	LC	___	Ornamental/shade tree
Bignoniaceae *Oroxylum indicum* (L.) Benth. ex Kurz	Aanemungu	NE	Stem bark and Root	Skin diseases
Bixaceae *Bixa Orellana* L.	Kesarimara	LC	___	
Cactaceae *Opuntia cochenillifera* DC.	Chappate Kalligida	NE	Fruits	Piles
Cannaceae *Canna indica* L.	Kabale	NE	___	Ornamental
Celastraceae *Salacia reticulata* Wight	Ekanayakanaballi	NE	Stem and root	Diabetes
Clusiaceae *Garcinia indica* (Thouars) Choisy	Punerpuli	VU	Fruit	Gastritis and cooling
Colchicaceae *Gloriosa superba* L.	Huliuguru	LC	Root tuber	Maggots in cattle

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Table 1 continued

Combrataceae *Terminalia catappa* L.	Kadubadami	LC	___	Ornamental and shade plant
Commelinaceae *Tradescantia spathacea* Sw.	____	NE	___	Ornamental
Compositae *Sphagneticola calendulacea* (L.) Pruski	Gargari	NE	___	Ornamental
Compositae *Spilanthes acmella* (L.) L.	Kalsarji	NE	flowers	Mouth ulcers
Compositae *Tridax procumbens* (L.) L.	Tikkegida	NE	Stem and root	Healing wounds
Convolvulaceae *Ipomoea hederifolia* L.	Nakshatrahuvu	NE	___	Ornamental
Convolvulaceae *Ipomoea quamoclit* L.	Kamanaballi	NE	___	Ornamental
Costaceae *Cheilocostus speciosus* (*J. Koenig*) C.D.Specht	Chengalakoshtha	LC	Leaves	Intestinal worms
Cucurbitaceae *Diplocyclos palmatus* (L.) *C. Jeffrey*	Malinganaballi	NE	Fruits	Tonic
Dioscoreaceae *Dioscorea bulbifera* L.	Heggenasu	NE	Bulbils	Piles, ulcers and cough
Dipterocarpaceae *Vateria indica* C.F.Gaertn.	Dhupadamara	VU	Resins	Healing wounds
Euphorbiaceae *Acalypha hispida* Burm.f.	Bekkinabaala-dagida	NE	___	Ornamental
Euphorbiaceae *Euphorbia tithymaloides* L.	Kannadigida	LC	___	Ornamental
Euphorbiaceae *Ricinus communis* L.	Oudala	NE	Seed oil	Healing wounds and cooling
Lamiaceae *Salvia coccinea* Buc'hoz ex Etl.	Kempu tumbe gida	NE	___	Ornamental
Lamiaceae *Ocimum gratissimum* L.	Rama tulasi	NE	Leaf and stem	Inflammation and fungal and bacterial infections
Lamiaceae *Clerodendrum thomsoniae* Balf. f.	Kadalahoo	NE	___	Ornamental
Lamiaceae *Tectona grandis* L.f.	Saguvanimara	NE	Tender shoots	Skin burns
Lauraceae *Cinnamomum verum* J. Presl	Dalchini	NE	Stem bark	Boils
Fabaceae *Aeschynomene indica* L.	Bendukasa	LC	Aerial parts	Healing wounds
Fabaceae *Caesalpinia pulcherrima* (L.) Sw.	Meese hoovu	LC	Aerial parts	Healing wounds
Fabaceae *Senna alata* (L.) Roxb.	Aanethagate	LC	Whole plant	Ring worm
Fabaceae *Mucuna pruriens* (L.) DC.	Nosagonne	NE	leaves	leucorrhoea
Fabaceae *Albizia saman* (Jacq.) Merr.	Male mara	NE	___	Ornamental/Shade tree
Fabaceae *Bauhinia purpurea* L.	Basavanapada	LC	Stem bark	Wounds and skin diseases
Fabaceae *Butea monosperma* (Lam.) Taub.	Muttugadamara	LC	Stem bark	dysentery
Fabaceae *Dalbergia latifolia* Roxb.	Beetemara	VU	Stem bark	Skin diseases
Fabaceae *Delonix regia* (Hook.) Raf.	Kemputorai	LC	___	Ornamental
Fabaceae *Peltophorum pterocarpum* (DC.) K.Heyne	Bettadahunise	NE	Leaf	Skin disorders
Fabaceae *Pongamia pinnata* (L.) Pierre	Hongemara	LC	Seed oil	Cooling effect when applied on head
Fabaceae *Saraca asoca* (Roxb.) W.J.de Wilde	Ashokadamara	VU	Stem bark	Healing wound
Lythraceae *Lagerstroemia speciosa* (L.) Pers.	Holedasavala	NE	Leaf	Crakced heals
Magnoliaceae *Magnolia champaca* (L.) Baill. ex Pierre	Sampigemara	LC	___	Ornamental
Malpighiaceae *Tristellateia australasiae* A. Rich.	haldipushpa	NE	___	Ornamental
Malvaceae *Grewia abutilifolia* Vent. exJuss.	Janigida	NE	Stem bark	inflammation
Malvaceae *Malvaviscus penduliflorus* Moc. & Sessé ex DC.	Dasavala	NE	Flowers	Hair growth
Malvaceae *Triumfetta rhomboidea* Jacq.	Jottotte	NE	leaves	Foot sole cracks
Malvaceae *Grewia tiliifolia* Vahl	Tadasalu	NE	Stem bark	Hair tonic
Malvaceae *Thespesia populnea* (L.) Sol. ex Corrêa	Bugarimara	LC	___	Ornamental
Malvaceae *Ceiba pentandra* (L.) Gaertn.	Biliburuga	LC	___	Ornamental
Menispermaceae *Cyclea peltata* (Lam.) Hook.f. & Thomson	Haadeballi	NE	Whole plant	Leucorrhea

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Table 1 continued

Menispermaceae *Tinospora cordifolia* (Willd.) Miers	Amrutaballi	NE	Stem and leaves	Fever and diabetes
Moraceae *Ficus exasperata* Vahl	Garagasa	NE	Bark and leaves	ringworm
Moraceae *Ficus racemosa* L.	Attimara	NE	Stem	Skin diseases
Moringaceae *Moringa oleifera* Lam.	Nuggemara	NE	Leaves	Skin diseases
Myrtaceae *Callistemon viminalis* (Sol. ex Gaertn.) G.Don	Bottle brush	NE	___	Ornamental
Nyctaginaceae *Bougainvillea spectabilis* Willd.	Kagadadahoo	NE	___	Ornamental
Oxalidaceae *Oxalis corniculata* L.	Hulisoppu	NE	Leaves and fruits	stomachic
Phyllanthaceae *Phyllanthus fraternus* G.L.Webster	Nelanelli	NE	___	Jaundice
Phyllanthaceae *Sauropus androgynus* (L.) Merr.	Chakra muni gida	NE	Leaves	Eaten raw for vitamin
Piperaceae *Piper longum* L.	Hippali	NE	Fruit pods	Cough and cold
Plantaginaceae *Mecardonia procumbens* (Mill.) Small	___	NE	___	____
Plumbaginaceae *Plumbago zeylanica* L.	Chitramula	NE	Roots	Sexual debility
Poaceae *Cymbopogon citratus* (DC.) Stapf	Majjigehullu	NE	Leaves	Gastrointestinal disorders
Proteaceae *Grevillea robusta* A. Cunn. ex R.Br.	Silver oak	LC	___	Ornamental/timber
Rubiaceae *Oldenlandia corymbosa* L.	Parpatahullu	NE	Whole plant	Urinary infection
Rubiaceae *Ixora coccinea* L.	Hole dasavala	NE	Flowers	Wounds and fever
Rubiaceae *Mussaenda erythrophylla* Schumach. &Thonn.	Kempu Manjatte	LC	___	Ornamental
Rubiaceae *Mitragyna parvifolia* (Roxb.) Korth.	Kongu	NE	Stem bark	Poison bites
Rubiaceae *Neolamarckia cadamba* (Roxb.) Bosser	Kadambamara	NE	Stem bark	Measles
Santalaceae *Santalum album* L.	Shrigandhamara	VU	Stem bark	Skin diseases and fever
Solanaceae *Withania somnifera* (L.) Dunal	Ashwagandha	NE	Leaves and fruits	Immunomodulator
Solanaceae *Capsicum frutescens* L.	Suujimenasu	LC	Fruits	Common cold
Solanaceae *Solanum torvum* Sw.	Sundekkayi	NE	Stem and leaves	Healing wound and tooth decay
Verbenaceae *Duranta erecta* L.	Durantakanti	LC	___	Ornamental
Vitaceae *Cissus quadrangularis* L.	Sanduballi	NE	Stem	Bone fractures
Vitaceae *Cissus rotundifolia* Vahl	Sanduballi	NE	Stem	Loss of appetite
Xanthorrhoeaceae *Aloe vera* (L.) Burm.f.	Lolesara	NE	Leaves	Skin diseases and hair conditioner
Zingiberaceae *Alpinia galanga* (L.) Willd.	Kallushunti	NE	Rhizome	Rheumatism

NE- Not Evaluated; EX- Extinct; EW- Extinct in Wild; CR- Critically Endangered; EN- Endangered; VU- Vulnarable; NT- Near Threatened; LC- Least Concerned; DD- Data Deficit

Many academic and research institutions are helpful in conserving local biodiversity as well as ethnomedicinal knowledge of the region through establishing Botanical gardens and medicinal plant gardens.

4 CONCLUSION

Bangurnagar degree college, Dandeli is rich in plant species composition acting as gene banks and enhancing knowledge of conservation among students and local people. The college also acts as the compendium for the traditional value of the species present locally. 63 plant species documented out of 103 in the present study are found its use in treatment by the local healers. 31 are in IUCN-RET category which are being conserved in the college campus and still more efforts need to be done to categorize and conserve the local valuable species. Initiatives have been taken for the maintenance and conservation of many local species including IUCN-RET and Endemic species by the Department of Botany as well as the management authority of the college. Initiative to conserve more species among the college student and local communities is essential and awareness programs to be conducted for the further conservation and sustainable utilization of the plants and traditional knowledge about the medicinal plants. Students were prioritized from the institution for collection, planting and maintenance of the medicinal plants as a skill development programme among the students during the many government programmes like World Earth day, Forest day by planting local species. Further plans for conservation, sustainable utilization and management, restoration of plant diversity is the need of time, for which active participation of the teachers and students studying the plant science and also other stake holders along with people from all the fronts are very much-needed.

The present Ethno-medicinal data is helpful in understanding the local knowledge among the people and sustainable utilization of plants. The institution is being a hub of knowledge, bridging the students and folk practitioners knowledge of plants which eventually help the students not only understanding the plants but also towards the ancestral respect towards worshiping plants. Hence the institution will integrate the society of traditional practitioners with the students to conserver, manage and also for the sustainable utilization of the plants and their products from the nature.

5 CONFLICTS OF INTEREST

No conflict of interest

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REFERENCES

1) K. V. Gururaj and T. V. Ramachandra, Anuran Diversity and Distribution in Dandeli Anshi Tiger Reserve, *ENVIS Technical report: 37- Sahyadri conservation Series*, 8 (2012).
2) T. Cooke, *Flora of the Presidency of Bombay Vols. 1-3 (Repr. Ed.). Botanical Survey of India*, Kolkata (1985).
3) S. A. Punekar and P. Lakshminarasimhan, *Flora of Anashi National Park Western Ghats - Karnataka*, Biospheres Publications, Pune (2011).
4) M. Chase, https://doi.org/10.1111/boj.12385, *Bot. J. Linn. Soc*, 181, *1*, 1 (2016)URL https://doi.org/10.1111/boj.12385.
5) The IUCN Red List of Threatened Species. Version 2022-1, (2022)URL https://www.iucnredlist.org.
6) G. B. Ashitha and A. G. Prasad, Diversity of Ethnomedicinal Plants and Their Therapeutic Uses in Western Ghats Region of Kodagu District, *Appld. Eco. Environ. Sci*, 9, *2*, 209 (2021)URL http://dx.doi.org/10.12691/aees-9-2-13.
7) M. S. Savinaya, S. S. Patil, J. Narayana, and V. Krishna, Traditional medicine knowledge and diversity of medicinal plants in Sharavathi valley region of central western ghats, *Int. J. Herb. Med*, 4, *6*, 124 (2016).
8) P. Bhat, G. R. Hegde, G. R. Hegde, and G. S. Mulgund, Ethnomedicinal plants to cure skin diseases—An account of the traditional knowledge in the coastal parts of Central Western Ghats, Karnataka, India, *Journal of Ethnopharmacology*, 151, *1*, 493 (2014)URL https://doi.org/10.1016/j.jep.2013.10.062.
9) P. A. Hosamani, H. C. Lakshman, K. Sandeepkumar, S. S. Kulkarni, and S. B. Gadi, Documentation of ethnobotanical medicinal plants growing in rock crevices of river Kali in Dandeli wild life sanctuary, *Life Sci. Leaflets*, 3, 36 (2012).