

Documentation of Medicinal plants of Quepem Taluka in Goa

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DECLARATION BY STUDENT

I hereby declare that the data presented in this Dissertation entitled, “**Documentation of Medicinal plants of Quepem Taluka in Goa**” is based on the results of investigations carried out by me in the Botany Discipline at the School of Biological Sciences and Biotechnology, Goa University under the supervision of Prof. B. F. Rodrigues and the same has not been submitted elsewhere for the award of a degree or diploma by me. Further, I understand that Goa University or its authorities will not be responsible for the correctness of observations/experimental or other findings given in the dissertation. I hereby authorize the University authorities to upload this dissertation to the dissertation repository or anywhere else as the UGC regulations demand and make it available to any one as needed.

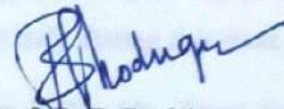
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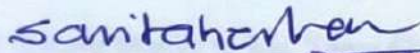
This is to certify that the dissertation report "**Documentation of Medicinal plants of Quepem Taluka in Goa**" is a bonafide work carried out by **Ms. Anna Grace Oliveira** under my supervision in partial fulfillment of the requirements for the award of the degree of Master of Science in the Discipline of Botany at the School of Biological Sciences and Biotechnology, Goa University.



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Ms. Anna. G. Oliveira



DEDICATED TO MY PARENTS

(Manuel.V.Oliveira & Joannette Oliveira)

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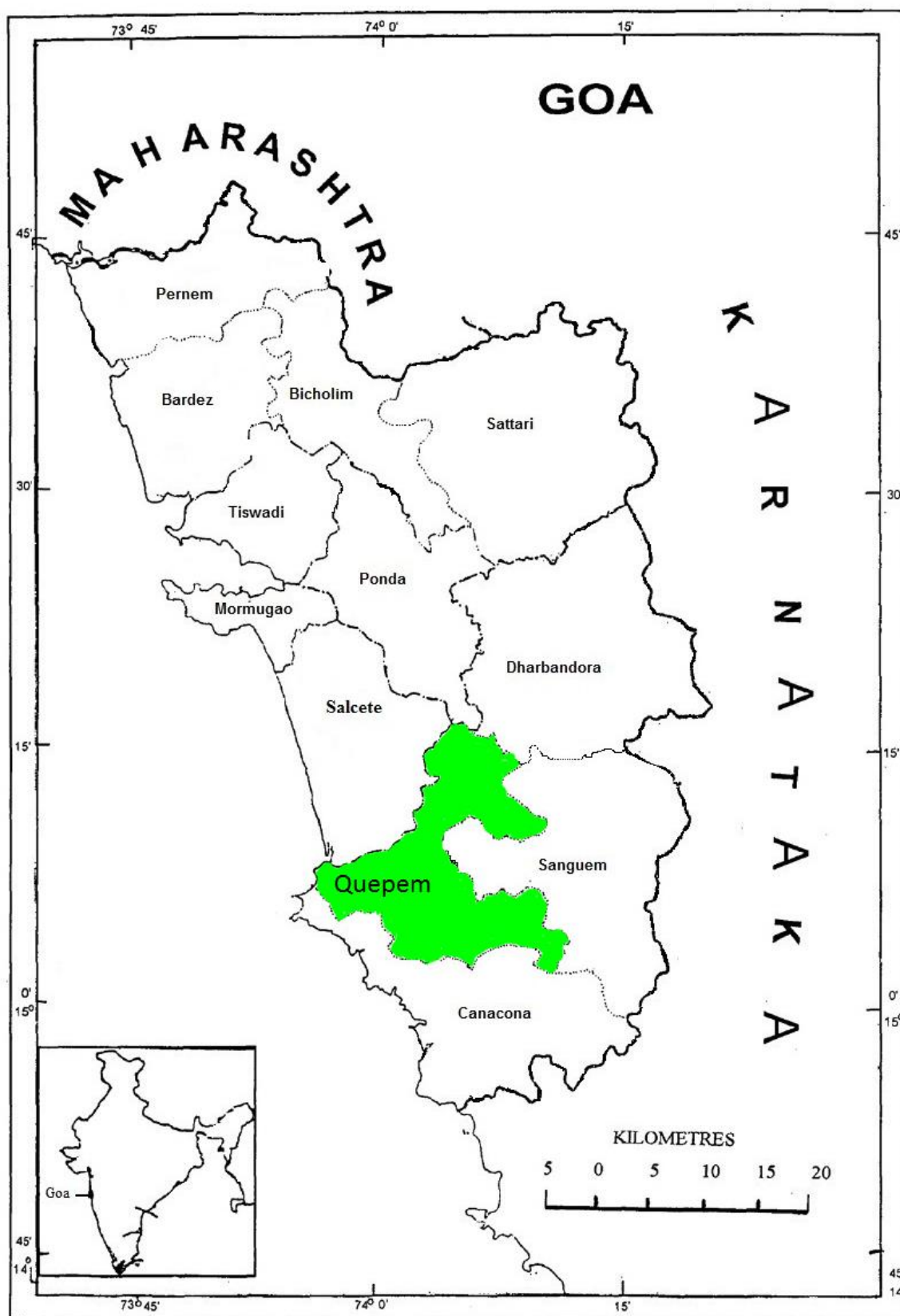
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MAP OF GOA



INTRODUCTION

Medicinal plants have always been the source of treatment, and the use of plants in curing illness has a long history in man (Alfred, 2013). Medicinal plants are valuable and are used for the production of various drugs. Ethnobotany, as a research field of science, has been widely used to document indigenous knowledge on the use of plants. India has great bio-diversity, with its rich source of medicinal plants distributed among the country's different geographical and ecological environments. India has many medicinal plant extracts or decoctions or pastes that are equally used by folklore and tribal's traditions and has a rich tradition of plant-based knowledge on healthcare for the treatment of cuts, burns, and wounds.

Medicinal plants have been used for medicinal purposes long before the prehistoric period. Shakya (2016). Primitive man and animals are found consuming various plants on feeling sick. The growth of traditional knowledge to cure different diseases and the number of new plant-derived drugs increased. The three ancient civilizations have documented their knowledge and developed their traditional system of medicine *i.e.* Unani manuscripts (Founded by Greeks and preserved by Turks and Arabs), Egyptian papyrus, and Chinese writings. Evidence exists that Unani Hakims, Indian Vaid, and European and Mediterranean cultures used herbs for around 4000 years as medicine. However, the Traditional Medical System of AYUSH (Ayurveda, Yoga, Unani, Siddha, and Homeopathy) is in the healthcare sector through global networks.

Medicinal plants have been recognized as potential drugs since they possess drug properties. Traditional systems of medicine are widely practiced on various accounts. Population rise, inadequate supply of drugs, the prohibitive cost of treatments, side effects of several synthetic medicines, and development of resistance to currently used drugs for infectious diseases have led

to increased emphasis on the use of plant materials as a source of medicines for a wide variety of human ailments (Shakya,2016). Indigenous knowledge has been transferred from one generation to another through oral transmission for thousands of years (Bouasla *et al.*, 2017). Medicinal plants are rich resources of ingredients that can be used in drug development, either pharmacopoeial, non-pharmacopoeial, or synthetic drugs. Herbal medicines have been improved in developing countries as an alternative solution to health problems and the costs of pharmaceutical products (Nimri *et al.*, 1999). Plants play a significant role in the development of human cultures, and they are considered an important source of nutrition and have therapeutic values. Aspirin is a significant source of active ingredients (Petrovska, 2012).

Ayurveda is an ancient health care system and it was practiced during the Vedic period back about 5000 years ago. Ayurveda system aims to preserve, promote and sustain good health and prevent diseases through healthy lifestyle practices. Ayurveda systems have intense knowledge about the compound present in medicinal plants. But the drawback of Ayurveda is that the practitioners keep the knowledge confidential. Sometimes, the practitioners do not share the knowledge with their family members. Medicinal plants are a significant resource base for the traditional medicine and herbal industry and provide livelihood and health security to the population. So ethnobotany and ethnomedical studies are today recognized as the most effective method for identifying new medicinal plants or refocusing on those plants reported in earlier studies for the possible extraction of beneficial bioactive compounds (Thirumalai *et al.*, 2009). Hence such research is essential to find and documenting important medicinal plants.

Medicinal plants act as a raw materials for drugs for effective health care of people. The effects on traditional medicinal plants are due to the presence of metabolites. Plant metabolites are

organic compounds that include two types, primary metabolites, and secondary metabolites. Local people have been using plants as medicine without scientific knowledge and proper advice for approximately a thousand years ago. Every part of the plant, viz., flower, root, stem, leaf, fruit, seed and/or whole plants, has medicinal properties. However, it has been recognized that some plants are unsafe for health since they contain toxic compounds that may affect the body adversely. Herbal medicine is widely practiced worldwide to cure ailments such as colds, allergies, upset stomachs, toothaches, etc.

Earlier studies explored the medicinal plants used by the local people to treat various ailments, and documenting such medicinal plants served as baseline data for future phytochemical and pharmacological studies (Wintola, 2010). The demand for medicinal plants has been increasing over the past decade. However, such knowledge would be alternative to contemporary medicine in developed countries (Lee, 2008). Traditional medicinal plants have received recognition and patronage, especially in treating mental and psychiatric illnesses (Magaji *et al.*, 2008), where many are often toxic (Igoli *et al.*, 2005).

The rural people of Goa have rich knowledge of medicinal plants and their applications. Different communities, like Velip, Gawda, Kunbi, Chambhar, Mhar, Kansar, *etc.*, are found in Goa. Most of them are socio-economically backward and use many plants to treat various diseases (Estbeiro, 2001). Goa has 12 talukas, and the tribal people residing in these areas have a rich knowledge of traditional medicinal plants documented in the present study. Also, the effects of medicinal plants for their natural care are always preferred over allopathic medicines. Quepem taluka is known for its rich diversity of medicinal plants which are used by rural tribes, mainly Velip, Kunbi, and Gawda.

In the present study, indigenous medicinal plants are documented as promising to cure various diseases such as jaundice, digestive disorder, diabetes, blood pressure, heart problem, etc. The original traditional knowledge base system is encoded due to industrialization, the modern education system, and the invasion of Western culture, especially Portuguese culture, which gradually leads to urbanization (Naik *et al.*, 2014). The people of Goa fear that this knowledge is vanishing and therefore such documentation plays a significant role in preserving this valuable knowledge. The objective of the present study was to document the data about the medicinal values of different plant species from Quepem taluka so that the idea could be used for future research work.

REVIEW OF LITERATURE

Zerabruk (2012) reported 26 medicinal plant species from Ethiopia for treating 36 human ailments. The preparations were administered through oral, dermal, and nasal routes.

Mustafa *et al.* (2012) documented 98 species used as traditional medicine by the alpine community in South Kosovo.

Unival *et al.* (2006) documented 35 medicinal plant species from Chhota Bhangal in Western Himalaya. They prepared 'sik', a traditional recipe that is served as a nutritious diet in pregnant women.

Muthu *et al.* (2006) documented 85 species of medicinal plants from the Kancheepuram district of Tamil Nadu. The documented plants are used to cure skin diseases, poison bites, stomachaches, and nervous disorders.

Agyare *et al.* (2018) reported 151 medicinal plant species from Ghana used for cancer treatment. Of these five plant species, viz., *Khaya senegalensis*, *Triplochiton scleroxylon*, *Azadirachta indica*, *Entandrophragma angolense*, and *Terminalia superba* belong to the family Meliaceae.

Lingaraju *et al.* (2013) recorded 126 plant species belonging to 60 families. They are administered to cure ailments such as diabetes, skin disorder (22), diarrhoea (6), wound healing (17), intestinal worms (14), The antidote for snake bites (13), jaundice (8) with a number of species given in parenthesis

Sivasankari *et al.* (2013) reported 52 species of medicinal plants belonging to 36 families from Uthapuram village, Tamil Nadu.

Parveen *et al.* (2007) documented 68 plant species belonging to 32 families from the Churu district in Rajasthan used to cure different ailments. The preparations are administrated for curing fever, rheumatism, diarrhea, asthma, piles, *etc.*

Pala (2010) documented 61 medicinal plants belonging to 28 families from the Pauri district of Uttarakhand. Of these, in 13 plant species, the roots and rhizomes were medicinal, while in 28 plant species, the leaves were medicinal.

Sajem (2006) documented 39 medicinal plant species used by the tribes in the North Cachar district of Assam. Different underground plant forms such as root, tuber, rhizome, bulb, and pseudo-bulb were found to have medicinal value.

Jeyaprakash (2011) reported 86 ethnomedicinal plant species from Tamilnadu. His study focused on the use of medicinal plants among the Paliyars and Muthuvars.

Dhal *et al.* (2015) reported 51 traditional medicinal plants belonging to 35 families from Nawarangpur district, Odisha, India. The leaf parts were used by root, bark, whole plant, seed, fruit, rhizome, petiole, and latex.

Bhat *et al.* (2013) Reported 152 medicinal plant species from the Kedarnath Wildlife Sanctuary of Garhwal Himalaya. They concluded that their study on traditional knowledge of medicinal plants serves as baseline information.

Alyemeni *et al.* (2011) surveyed 24 species of ethnomedicinal plants from Saudi Arabia to cure gastrointestinal disorders, fever, cough, respiratory tract infection, and urinary tract diseases, promote lactation, wound healing, placenta removal, deworming, carminative, paralysis, and flatulence.

Kamatenesi *et al.* (2011) documented 41 medicinal plants from Oyam district, Northern Uganda. The preparations were administrated orally and used for treating stomach-related ailments.

Reddy *et al.* (2009) reported 48 Ethnomedicinal plants from the Cuddapah district, Andhra Pradesh. They observed that a higher number of medicinal plant species were used for the treatment of skin diseases and indigestion.

Salim *et al.* (2019) documented traditional knowledge of medicinal plants from six districts in Gilgit-Baltistan, Pakistan. They surveyed villages influenced by traditional Chinese medicine and more by Ayurveda and Unani.

Alvarado *et al.* (2008), in their study on traditional knowledge of medicinal plants from Mexico and Central America, reported 1000 medicinal plant species that are indigenous and used for various treatments.

Besnik *et al.* (2013) recorded 76 species of ethnomedicinal plants from Western Macedonia and Gorani. They reported that mainly the wild taxa represented the folk medical heritage of the area.

Mohammed *et al.* (2011) documented 53 species of medicinal plants from Bangladesh. The major ailments treated include gastrointestinal and sexual disorders.

MATERIALS AND METHODS

Ethnobotanical data collection:

Goa is located in the West India region of the Konkan, and the state of Maharashtra bounds it to the north and by Karnataka to the east and south, while the Arabian sea forms its Western coast. Goa bounded an area of 3,702 km² (1,429 sq m). It lies between the latitudes 14°53'54" N and 15°40'00" N and longitudes 73°40'33" E and 74°20'13" E.

Quepem taluka of South Goa was selected for the present investigation. To document the utilization of indigenous medicinal plants, a survey was carried out from August 2022 to March 2023. The traditional healers and women representing major ethnic groups, occupations, and castes were encouraged to participate. A total of 40 selected inhabitants were interviewed. Out of 40, 18 were male, and 22 were woman. The age of the healers was between 27 years and 86 years.

Ethno-botanical data collection, after gathering information's from experienced traditional herbal medicine practitioners who knew about conventional healing consent with the participating communities, consisted of group discussions with informants in the local language in Konkani and to explain to them that their cooperation is a valuable contribution to the documentation of the traditional plant used by them, informal meetings, schedule surveys, key informant surveys, cross-checking and field work. An organized questionnaire was used to elicit information from the resource persons using standard methods.

Plant identification:

Voucher specimens were collected for each plant species except for some widespread cultivated plants identified in the field.

Preliminary identification of the collected specimens was made in the field, and then they were dried and compared with authentic herbarium specimens and finally confirmed by taxonomists. Their taxonomical identification was carried out with the help of Flora of Goa (Rao, 1986). The routine of pressing and drying the species was followed.

QUESTIONNAIRE

Sr. No: _____

Date: _____

Information collected from Mr/Mrs: _____

Address: _____

Place of collection: _____

Age: _____ Sex: M/F

Language: _____

Occupation: _____

Plant use information:

Family: _____

Scientific Name: _____

Local Name: _____

English Name: _____

Plant Description: _____

Plant part/s used: (Root / Stem / Twig/ Root bark / Stem bark/ flower /fruit/ seed / whole plant)

Ailment treated: _____

Latex: Absent/ Present

How a plant is used: (Fresh/ Dried / Decoction)

Preparation and Administration

Details: _____

Dosage: _____ Duration of Treatment: _____

Note: _____

***Hibiscus rosa-sinensis* L.**

Plant description: A small tree growing 2m tall; stem aerial, erect, green, cylindrical, and branched; leaves simple and petiolate.

Family: Malvaceae.

Local Name: Doshni (red).

English Name: Hibiscus.

Disease/Ailment: Hair fall.

Plant part used: Flower.

Preparation and administration: Six flowers are boiled in half a liter of coconut oil and applied to hairs.

Disease/Ailment: Hair fall.

Plant part used: Root.

Preparation and administration: Paste prepared from the root is applied to the affected part.

Location: Balli-Vontem, Quepem.

***Micrococos paniculata* L.**

Plant description: Erect bushy shrub; leaves elliptic-oblong, base rounded or cordate, glabrous; petioles up to 1 cm long; flowers in axillary and terminal panicles; fruit a drupe 6-10 mm across, globose, purple on ripening.

Family: Malvaceae.

Local Name: Asale/Asnache.

English Name: Elm-Leaf Grewia.

Disease/Ailment: Hepatitis.

Plant part used: leaf.

Preparation and administration: Decoction prepared using half a pinch of the powder prepared from dried leaves along with half a teaspoon of jeera (*Cuminum cyminum*) is consumed orally.

Disease/Ailment: Jaundice.

Plant part used: Root.

Preparation and administration: Juice is obtained by using three grams of root, along with little water and is consumed orally.

Disease/Ailment: Paralysis.

Plant part used: Bark.

Preparation and administration: Four grams of bark boiled in half a bucket of water is used for bathing, or paste obtained using two and a half grams of bark with two tablespoons of cashew (*Anacardium occidentale*) feni is applied to the affected part.

Location: Balli-Vontem, Quepem Goa.

***Boerhavia diffusa* L.**

Plant description: Perennial diffuse herb (0.75 - 1m. in height) with a horizontal purplish stem.

Family: Nyctaginaceae.

Local Name: Punarnava.

English Name: Pigweed.

Disease/Ailment: Cough.

Plant part used: Whole plant part.

Preparation and administration: Decoction prepared using 7-10 Punarnava leaves along little jeera (*Cuminum cyminum*), four leaves of pudina (*Mentha arvensis L.*), and seven dried seeds of coriander (*Coriandrum sativum L.*) in two cups of water is consumed orally.

Ailment: Urinary infection.

Plant part used: Whole plant part used.

Preparation and administration: Decoction prepared using 4-5 leaves in one litre of water is orally consumed.

Ailment: Kidney stones.

Plant part used: Root.

Preparation and administration: One gram of root powder and one-fourth of corn silk (*Zea mays L.*) are mixed with 2 cups of water and consumed orally.

Location: Ballim-Vontem Quepem.

Mentha arvensis L.

Plant Description: Leaves in opposite pairs, oblong to lanceolate, often downy, with a serrated margin.

Family: Lamiaceae.

Local Name: Vottelau.

English Name: Mint.

Disease/Ailment: Cough.

Plant part used: Leaf.

Preparation and administration: Decoction of 5-10 leaves in one glass of water is consumed orally.

Ailment: Wound.

Preparation and administration: Paste prepared using 10-15 leaves is applied to the affected part.

Location: Sirvoi, Quepem.

***Curcuma longa* L.**

Plant description: Perennial herb with a short stem; leaves large, simple, oblong; Tubers are oblong or ovate and often branched.

Family: Zingiberaceae.

Local Name: Haldi.

English Name: Turmeric.

Disease/Ailment: Skin disease.

Plant part used: Rhizome.

Preparation and administration: Two grams of dry Rhizome powder and one teaspoon of milk are mixed with two teaspoons of coconut (*Cocos nucifera*) oil and gently applied to the affected area.

Disease/Ailment: Cough.

Plant part used: Rhizome.

Preparation and administration: Half a teaspoonful of dry rhizome powder, is mixed in one cup of boiled milk and consumed orally.

Location: Sirvoi, Quepem.

***Psidium guajava* L.**

Plant description: Small tree; quadrangular branchlets, oval to oblong leaves, approx. 7.6 cm in length; fruits round to pear-shaped (up to 7.6 cm in diameter); pulp contains many tiny hard seeds.

Family: Myrtaceae.

Local Name: Pear.

English Name: Guava.

Disease/Ailment: Vomiting.

Plant part used: leaf.

Preparation and administration: Two dimpti (*Leea indica*) leaves, four koimyo (*Careya arborea*) leaves, and six guava leaves are steamed. The resultant juice prepared after steaming is consumed orally.

Disease/Ailment: Dysentery.

Plant part used: leaf.

Preparation and administration: Two koimyo (*Careya arborea*) leaves, 6-12 guava leaves, four pudina (*Mentha arvensis*) leaves are steamed. The resultant juice prepared after steaming is consumed orally.

Disease/Ailment: Toothache.

Plant part used: leaf.

Preparation and administration: Brush the teeth by using a guava leaf.

Location: Sirvoi, Quepem.

***Chromolaena odorata* (L.)**

Plant description: Perennial herb, hairy and glandular; leaves opposite, triangular to elliptical with serrated edges, gives pungent aromatic odour; white flowers in panicles of 10-35.

Family: Asteraceae.

Local Name: Indira Gandhi plant.

English Name: Devil Weed.

Disease/Ailment: Wound-bleeding.

Plant part used: Leaf.

Preparation and administration: Paste prepared using three mature leaves with little water applied to the affected part.

Location: Medka Sirvoi, Quepem.

***Annona muricata* L.**

Plant description: Evergreen tree, erect, 5-8 m in height; leaves large, glossy, dark green; fruits edible, heart-shaped, and green; diameter varies between 15-20 cm.

Family: Annonaceae.

Local Name: Patponos.

English Name: Soursop.

Disease/Ailment: Cancer.

Plant part used: Fruit.

Preparation and administration: Raw fruits are cooked and consumed orally.

Ailments: Diabetes & fever.

Plant part used: Fruit.

Preparation and administration: Mature fruits are consumed orally.

Location: Ballim-Vontem, Quepem.

***Piper nigrum* L.**

Plant description: Perennial woody vine growing up to 4m in height; fruit a drupe 5mm dia., dark red, contains a stone that encloses a single pepper seed; flowers are small, with pendulous spikes up to 8 cm long at the leaf nodes; leaves alternate, entire 5-10 cm long.

Family: Piperaceae.

Local Name: Mirya.

English Name: Black pepper.

Disease/Ailment: Cold.

Plant part used: Seed.

Preparation and administration: Decoction prepared using two cups of water along with one teaspoon of freshly ground black pepper and half an inch of ginger (*Zingiber officinale*) is consumed orally.

Disease/Ailment: Fever.

Plant part used: Seed.

Preparation and administration: The decoction is prepared by boiling four cups of water, two teaspoons of ground black pepper, and one teaspoon of honey consumed orally.

Location: Balli-Vontem, Quepem.

***Ananas comosus* (L) Merr**

Plant description: The plant grows up to 1-2 m tall and wide; flowers grow on the terminal ends of the leaves, which produce edible fruit; stem in the centre is approximately 25-50 cm long.

Family: Bromeliaceae.

Local Name: Ananas.

English Name: Pineapple.

Disease/Ailment: Indigestion.

Plant part used: Fruit.

Preparation and administration: Ripe fruit juice is extracted and mixed with half a teaspoon of salt and half a teaspoon of sugar and consumed orally.

Location: Sirvoi, Quepem.

***Saccharum officinarum* L.**

Plant description: Perennial with unbranched stems; stems vary in colour, being green, and can reach 5 meters in height. Jointed nodes are present at the bases of alternate leaves; internodes contain a fibrous white pith immersed in sugary sap.

Family: Poaceae.

Local Name: Uss.

English Name: Sugarcane.

Disease/Ailment: Jaundice.

Plant part used: Stem.

Preparation and administration: Juice extracted from a stem with half an inch of ginger and a pinch of mint is consumed orally.

Location: Balli-Vontem, Quepem.

***Tabernaemontana divaricata* (L.)**

Plant description: Plant grows to a height 1.8 metres, dichotomously branched. Leaves are shiny, deep green colour; flowers are pinwheel in shape, white in colour.

Family: Apocynaceae.

Local Name: Anantache zadd.

English Name: Crape jasmine

Disease/Ailment: Contraceptive.

Plant part used: Bark.

Preparation and administration: Juice obtained from four grams of bark is mixed with three teaspoons of cashew (*Anacardium occidentale*) feni and is consumed orally.

Location: Balli-Vontem, Quepem.

Cucumis trigonus L.

Plant description: Annual or perennial prostrate herb with tendrils; fruits are oval to round and pale yellow or red upon ripening.

Family: Cucurbitaceae.

Local Name: Karit.

English Name: Acorn Squash.

Disease/Ailment: Fever.

Plant part used: Fruit.

Preparation and administration: Juice extracted from the fruit is mixed with half a teaspoon of honey, or jaggery is consumed orally.

Disease/Ailment: Abdominal pain.

Plant part used: Fruit.

Preparation and administration: Two teaspoons of juice from the fruit are given to infants orally.

Location: Mollus-Paroda.

Cucurbita Maxima L.

Plant description: Pubescent climber; leaves 7-25 cm long, entire or emarginate, petiole 15 cm long; flowers large, axillary, solitary; fruits large; seeds are ovate and yellowish, measuring 18-22 mm.

Family: Cucurbitaceae.

Local Name: Dudhi.

English Name: Pumpkin.

Disease/Ailment: Urinary disorders.

Plant part used: Fruit stalk.

Preparation and administration: Cut 10-15 pieces of fruit stalk, add half a teaspoon of milk and one cup of water, boil for 15 minutes, and consume orally.

Disease/Ailment: Boils.

Plant part used: Fruit stalk.

Preparation and administration: Paste prepared using six pieces of fruit stalk, half an inch of *Aloe vera* gel, a pinch of turmeric powder, and little water applied to the affected part.

Location: Ambaulim, Quepem.

***Coccinia grandis* (L.) J. Voigt**

Plant description: Leaves 3-5 cm long, palmately 3-5-lobed, broadly, base cordate, margin denticulate, apex acute; petiole 2.5-5 cm long, oblong, compressed seeds.

Family: Cucurbitaceae.

Local Name: Tendli.

English Name: Little Gourd.

Disease/Ailment: Ringworms and itching.

Plant part used: Leaf.

Preparation and administration: Paste prepared using 15-30 leaves is applied to the affected part.

Disease/Ailment: Diabetes.

Plant part used: Leaf.

Preparation and administration: Decoction is prepared using 6-12 leaves and half an inch of Arjuna bark (*Ulmus rubra*) in one cup of water. Half a glass of decoction is consumed orally on an empty stomach in the morning.

Disease/Ailment: Tongue swelling.

Plant part used: Fruit.

Preparation and administration: The raw fruit and a pinch of jaggery or little honey are chewed for 10-15 minutes.

Disease/Ailment: Urinary hesitancy.

Plant part used: Root.

Preparation and administration: Two grams of root and two glasses of water are boiled until the volume is reduced to half. The decoction is filtered and consumed orally.

Location: Adnem, Quepem.

***Cucumis sativus* L.**

Plant description: Creeping vine with upright stem, annual, grows to be up to 5m long; leaves alternate and hairy, with branched tendrils at the leaf axis; flowers yellow with tendrils, triangular prickly hairy leaves.

Family: Cucurbitaceae.

Local Name: Tovshe.

English Name: Cucumber.

Disease/Ailment: Swollen eyes.

Plant part used: Fruit.

Preparation and administration: Cut the fruit into spherical shapes and gently apply it to the affected eye.

Disease/Ailment: Sunburn.

Plant part used: Seed.

Preparation and administration: Paste prepared from the fruit with a small amount of water is applied to the affected part.

Location: Morpirla, Quepem.

***Aloe barbadensis* L. Burm.f**

Plant description: Stemless plant; grows up to 24-39 inches; green to grey-green leaves thick and fleshy; leaf margin serrated with small white teeth; flowers pendulous, grow on spikes up to 90cm tall.

Family: Asphodelaceae

Local Name: Katyakuval.

English Name: Aloe vera.

Disease/Ailment: Skin rash.

Plant part used: leaf.

Preparation and administration: Leaf jelly is applied to the affected part.

Location: Chandreshwar, Bhutnath Quepem.

***Phyllanthus niruri* L.**

Plant description: Herb, 50-70 cm tall, bears ascending herbaceous branches; bark smooth and light green, flowers pale green often flushed with red; fruits tiny, soft capsules containing seeds.

Family: Phyllanthaceae.

Local Name: Bui (Amla).

English Name: Gale of the Wind, Stonebreaker.

Disease/Ailment: Kidney stone.

Plant part used: Leaf.

Preparation and administration: 20-30 leaves in two cups of water are boiled and reduced to half. The resultant decoction is consumed orally early morning on an empty stomach.

Disease/Ailment: Diabetes.

Plant part used: leaf.

Preparation and administration: One teaspoon of paste prepared by grinding 15 leaves with little water is then stirred in one cup of warm water and is consumed twice a day for one week orally.

Location: Morpilla, Quepem,.

***Murraya koenigii* (L.) Spreng**

Plant description: Leaves compound, odd-pinnate 30cm long; leaflets attached to rachis by a 0.5 cm long, reddish petiole.

Family: Rutaceae.

Local Name: Karipat/karvil.

English Name: Curry Leaves Plant.

Disease/Ailment: Digestion.

Plant part used: Leaf.

Preparation and administration: Decoction prepared by boiling five leaves in half a glass of water is orally consumed morning on an empty stomach.

Disease/Ailment: Blood pressure.

Plant part used: Leaf.

Preparation and administration: Paste is prepared by grinding 15-30 leaves using little water. Add one teaspoon of amla (*Phyllanthus emblica*) juice. Two tablespoons of this mixture are added to half a glass of water and consumed orally, or a tablet prepared from powder of dried leaves is mixed in little water and ingested orally early in the morning.

Location: Dabem, Quepem.

***Aegle marmelos* (L.) Correa**

Plant description: Deciduous shrub, up to 13 meters tall; leaves trifoliate, alternate, round base; flowers 1.5 to 2 centimeters, pale green, and bisexual; berries ovoid, 6-10 cm, woody, yellowish, many-seeded; seeds oblong and flat.

Family: Rutaceae.

Local Name: Bel.

English Name: Bael.

Disease/Ailment: Diabetes.

Plant part used: Fruit.

Preparation and administration: Paste is prepared by grinding a fruit with little water. One tablespoon of it is mixed in one glass of water and is consumed orally.

Disease/Ailment: Kidney stones.

Plant part used: Fruit.

Preparation and administration: Paste is prepared by grinding a fruit with little water. One tablespoon of it is mixed in one glass of water and is consumed orally.

Location: Pimpal Cotta, Sirvoi Quepem.

***Careya arborea* Roxb.**

Plant description: Deciduous tree, 12 m tall, bark 10-12 mm thick, brownish; leaves simple, alternate, clustered at the tips of branchlets; petiole 10 mm long; flowers bisexual, greenish-white, 5-10 mm across, in terminal spikes; fruit a berry 5-7.5 cm, green, pericarp fibrous.

Family: Lecythidaceae.

Local Name: Kumbio.

English Name: Wild guava.

Disease/Ailment: Body pain.

Plant part used: Leaf.

Preparation and administration: Paste prepared using ten leaves is applied to an affected part.

Location: Ambaulim, Quepem.

***Eryngium foetidum* L.**

Local Name: Ranatli Kothamir.

English Name: Long Coriander.

Plant description: Biennial herb, 15-45 cm high; basal leaves are spatulate, spinous, and toothed; leaves in the flowering branches are small, lanceolate, pointed, and rosette; flowers white, in subsessile umbels; fruit ellipsoid.

Family: Apiaceae.

Local Name: Ranatli Kothamir.

English Name: Long Coriander.

Disease/Ailment: Menstruation.

Plant part used: Leaf.

Preparation and administration: Decoction prepared using 5-8 leaves in a glass of water is consumed orally.

Disease/Ailment: Stomach ache.

Plant part used: Leaf and Root/Whole plant.

Preparation and administration: Half a glass of the decoction prepared by boiling root/leaf/whole plant in one glass of water is consumed orally.

Disease/Ailment: Joint pain.

Plant part used: Leaf.

Preparation and administration: Paste prepared using ten leaves and applied directly on the affected area.

Disease/Ailment: Boils.

Plant part used: Leaf.

Preparation and administration: Paste prepared using ten leaves and applied directly on the affected area.

Disease/Ailment: Fever.

Plant part used: Leaf.

Preparation and administration: Decoction is prepared by boiling 5-8 leaves in one glass of water on a low flame for 10 minutes. Add lemon juice and honey to this and consume it hot.

Disease/Ailment: Malaria.

Plant part used: Leaf.

Preparation and administration: Decoction is prepared by boiling 5-8 leaves in one glass of water on a low flame for 10 minutes. Add lemon juice and honey to this and consume it hot.

Disease/Ailment: Chickenpox.

Plant part used: The whole plant.

Preparation and administration: Boil 15-20 leaves in half a bucket of water and use it for bathing.

Disease/Ailment: Muscle contraction.

Plant part used: Leaf.

Preparation and administration: Boil 8-16 leaves in 2 litres of water and directly apply to the affected area.

Disease/Ailment: Itching.

Plant part used: The whole plant.

Preparation and administration: Juice is prepared by grinding one whole plant using little water applied to the affected area.

Disease/Ailment: Ringworm.

Plant part used: The whole plant.

Preparation and administration: Juice is prepared by grinding one whole plant using little water applied to the affected area.

Disease/Ailment: Headache.

Plant part used: The whole plant.

Preparation and administration: Juice is prepared by grinding one whole plant using little water applied to the affected area.

Disease/Ailment: De-worming.

Plant part used: Roots.

Preparation and administration: Paste prepared by grinding two roots using three teaspoonfuls of cashew feni is applied to the stomach.

Disease/Ailment: Indigestion.

Plant part used: Leaf.

Preparation and administration: Grind 7-10 leaves with little water, ½ inch of ginger, 4-5 black peppers, and one teaspoon of fenugreek. The resultant chutney is consumed orally.

Location: Quimbar, Sirvoi medka.

***Cyclea peltata* Linn.**

Plant description: Twining shrub, with sparingly pillose stems; fruit drupe, ovoid with curved seeds.

Family: Menispermaceae.

Local Name: Padval.

English Name: Pata root.

Ailment: Loose motion.

Plant part used: Leaf.

Preparation and administration: Steamed is prepared using 9-11 leaves in half a litre of water and consumed orally.

Location: Dabem-Morpilla, Quepem.

***Ricinus communis* L.**

Plant description: Perennial shrub, stem smooth, round, and frequently red, with clear sap; leaves simple and alternate; flowers borne in terminal panicles.

Family: Euphorbiaceae.

Local Name: Arandi.

English Name: *Castor bean*.

Ailment: Stomachache.

Plant part used: Leaf.

Preparation and administration: Take two teaspoons of paste prepared by grinding 10-12 leaves using little water, mix with an equal amount of cashew (*Anacardium occidentale*) feni, gently apply to the stomach, and wait 15-20 minutes.

Ailment: Lactation in mothers.

Plant part used: Leaf.

Preparation and administration: Decoction prepared using 8-15 leaves in one glass of water is consumed orally.

Ailment: Toothache.

Plant part used: Root.

Preparation and administration: Paste prepared by grinding 2½ fresh roots and four cloves (*Syzygium aromaticum*) using little water is applied to the affected part for 15 minutes or take root, slightly warm it, and slowly chew it or brush the teeth. Wait for 15-20 minutes, and then rinse with water.

Location: Xis-xelvona, Quepem.

***Calotropis gigantea* (L.) W.T. Aiton**

Plant description: Shrub; leaves ovate-obovate, light green, and milky stem with latex; flowers pale purple with clusters of waxy flowers.

Family: Apocynaceae.

Local Name: Rui.

English Name: Crown flower or Giant milkweed.

Ailment: Ringworm.

Plant part used: Root.

Preparation and administration: Paste is prepared by grinding 1½ root using little water, one teaspoon of *Aloe vera* gel, and six teaspoons of besan flour (*Cicer arietinum*). Take two teaspoons of paste and gently apply it to the affected area.

Ailment: Asthma.

Plant part used: Leaf.

Preparation and administration: Smoke is inhaled from a cigarette prepared using two to three dried leaves.

Ailment: Diabetes.

Plant part used: Root.

Preparation and administration: Paste is prepared using two grams of root, along with little water, and consumed orally.

Location: Tailaiwada, Quepem.

***Rauwolfia serpentina* Benth.**

Plant description: Tuberous with pale brown cork. Leaves are large, in whorls of three, grouped near the stem apex, bright green above and pale green beneath. Usually unbranched, slender, straw coloured. In irregular corymbose cymes with red pedicels and calyx, white corolla, often tinged with violet.

Family: Apocynaceae.

Local Name: Aatki, Sarpgandha.

English Name: Indian Snakeroot.

Ailment: Loose motion.

Plant part used: Root.

Preparation and administration: Decoction prepared using three fresh roots in one glass of water is consumed orally.

Location: Fatorpa, Quepem.

***Cascuta reflexa* L.**

Plant description: Leafless, parasitic perennial twinner, pale greenish–yellow; flowers white in umbellate clusters with corolla tubes cylindrical; fruit a capsule, globose with large black seeds.

Family: Cuscutaceae.

Local Name: Benulo.

English Name: Doddler Plant.

Ailment: Jaundice.

Plant part used: The whole plant.

Preparation and administration: Juice prepared by using one handful of the whole plant in one litre of water, adding a pinch of white jaggery, is consumed orally.

Ailment: Rheumatism.

Plant part used: The whole plant.

Preparation and administration: Paste is obtained from three grams of plant, using little water is slightly warmed and applied to the affected part.

Ailment: Headache.

Plant part used: The whole plant.

Preparation and administration: Paste prepared with two grams of the whole plant is applied to the affected area.

Ailment: Liver trouble.

Plant part used: The whole plant.

Preparation and administration: Decoction prepared from the whole plant in two glasses of water is orally consumed for one week.

Location: Chandreshwar Bhutnath, Quepem.

***Areca catechu* (L.)**

Plant description: Erect stem, inflorescences branched, yellowish green; male flower solitary; female flowers at bases of rachillae only; fruits yellow, red, or orange ovoid in shape.

Family: Araceae.

Local Name: Madi.

English Name: Areca Palm.

Ailment: Deworming.

Plant part used: Unripe fruit.

Preparation and administration: Two fresh unripe areca nuts are grounded using a half glass of water and one teaspoon consumed orally early in the morning.

Ailment: Joint pain.

Plant part used: Nut.

Preparation and administration: Two teaspoons of coconut oil and one teaspoon of mustard oil are added to areca nut (*Areca catechu*) powder and mixed well. The resultant mixture is massaged to the affected part.

Ailment: Mouth ulcers.

Plant part used: Nut.

Preparation and administration: Boil 3-5 betel nuts in water and take gurgles twice daily, early morning and night.

Ailment: Indigestion.

Plant part used: Ripe nut.

Preparation and administration: In betel leaf (*Piper betel*) leaf, add one areca nut (*Areca catechu*) and chew it orally on an empty stomach (early morning).

Ailment: Blood pressure.

Plant part used: Ripe nut.

Preparation and administration: Take betel leaf (*Piper betel*), add one amla (*Phyllanthus emblica*), half an inch of ginger (*Zingiber officinale*), and an areca nut. Mix well and chew it orally on an empty stomach.

Location: Molcarnem, Quepem.

***Ziziphus rugosa* Lam.**

Plant description: Scandent thorny shrub; leaves ovate-orbicular, apex acute; flowers subsessile, disk flat, glabrous; fruit a drupe, globose, white, glabrous.

Family: Rhamnaceae.

Local Name: Chuvra.

English Name: Cunna Berry.

Ailment: Dysentery.

Plant part used: Bark.

Preparation and administration: Juice is obtained by using two grams of bark and two teaspoons of cashew (*Anacardium occidentale*) feni, and it is consumed orally.

Ailment: Boils.

Plant part used: Leaf.

Preparation and administration: Paste from 2-5 leaves is gently applied to the affected part.

Location: Nagvem, Quepem.

***Santalum album* (L.)**

Plant description: Evergreen tree; leaves simple, opposite, glabrous, margin entire; flowers bisexual, reddish-purple; fruit a drupe, globose, blackish-purple; single-seeded.

Family: Santalaceae.

Local Name: Chandan.

English Name: Indian sandalwood.

Ailment: Skin inflammation.

Plant part used: Bark.

Preparation and administration: Paste obtained from three grams of bark in a small amount of water is gently applied to the affected part.

Location: Padi, Quepem.

***Macaranga peltata* (Roxb.)**

Plant description: Dioecious tree, up to 10 meters tall; leaves are 20-50cms, alternately arranged and broadly ovate; flowers yellow-green; male flowers minute, numerous, and clustered in the axils of large bracts; fruit a capsule, globose, hairy, glandular, black; single-seeded.

Family: Euphorbiaceae.

Local Name: Chano/ Chanudo.

English Name: Chandada.

Ailment: Wound healing.

Plant part used: Leaf.

Preparation and administration: Paste prepared using one leaf, and a small amount of water is applied to the affected part.

Ailment: Wound bleeding.

Plant part used: Leaf latex.

Preparation and administration: Fresh white latex from the leaf is applied to the affected area.

Location: Sulcorná, Quepem.

***Tamarindus indica* L.**

Plant description: Evergreen tree about 10 to 15 meters tall, rough bark; leaves green, elliptical ovular; alternate; flowers red or pale yellow; fruit a pod, 12-15 cm long with a hard brown shell, flat, usually curved; seeds dark brown and smooth.

Family: Fabaceae.

Local Name: Chinch.

English Name: Tamarind.

Ailment: Jaundice.

Plant part used: Bark.

Preparation and administration: Decoction prepared using two grams of bark in one glass of water is consumed orally.

Ailment: Dysentery.

Plant part used: Seed.

Preparation and administration: One teaspoon of seed powder and half a teaspoon of honey is mixed in n half a glass of hot water and consumed orally.

Ailment: Heart disease.

Plant part used: Unripe fruit.

Preparation and administration: Unripened fruit and garlic (*Allium sativum*) are chewed empty stomach (early morning).

Ailment: Epilepsy.

Plant part used: Root.

Preparation and administration: One cup of root decoction is consumed orally.

Location: Cotombi, Quepem.

***Combretum indicum* (L.) De Fillips**

Plant description: Perennial evergreen scandent large shrub; leaves acuminate; flowers first appear white, then orange, and finally red.

Family: Combretaceae.

Local Name: Madhumalati.

English Name: Rangoon Creeper.

Ailment: Cough.

Plant part used: Fruit.

Preparation and administration: Juice is extracted from one ripe fruit. Half a teaspoon of honey is added and mixed in half a glass of water. Of this, only two tablespoons are consumed orally.

Ailment: Boils.

Plant part used: Leaf.

Preparation and administration: Paste obtained from leaves using a little water is applied to the affected part, or two teaspoons of juice extracted from leaves is consumed orally for 2-3 days.

Ailment: Ulcers.

Plant part used: Leaf.

Preparation and administration: Boil nine leaves in two glasses of water. Add two teaspoons of salt, and take gurgles.

Location: Dabem, Quepem.

***Ixora coccinea* L.**

Plant description: Small Evergreen shrub; leaves sessile, elliptic, ovate, stipules interpetiolar; flowers in compact corymbs with two small, leaf-like bracts; individual flowers with two bracteoles at the base; fruit globose, berry.

Family: Rubiaceae.

Local Name: Pitcoli.

English Name: Scarlet jungle flame.

Ailment: Abdominal pain.

Plant part used: Root.

Preparation and administration: Three grams of roots are boiled in coconut oil for five minutes, and a warm massage is administered to the affected part.

Location: Gocoldem, Quepem.

***Draceana trifasciata* (Prain)**

Plant description: Evergreen perennial succulent with a network of rhizomes; leaves dark green with light gray-green cross-banding.

Family: Dracaenaceae.

English Name: Snake plant.

Ailment: Wound bleeding.

Plant part used: Leaf.

Preparation and administration: Fresh sap from a leaf is applied to the affected part.

Ailment: Ringworms.

Plant part used: Leaf.

Preparation and administration: Paste obtained from one fresh leaf with a little water is gently applied to the affected part.

Location: Balli, Quepem.

***Costus igneus* Nak.**

Plant description: Perennial evergreen plant; leaves simple, alternate, dark green, entire, and oblong with parallel venation; flowers orange, 2-12 cm diameter appear on cone-like heads at the tips of branches.

Family: Costaceae.

Local Name: Insulin.

English Name: Insulin plant.

Ailment: Diabetic mellitus.

Plant part used: Leaf.

Preparation and administration: Chewing one fresh plant leaf for one month (30 days). After one week, consume one leaf on an empty stomach (morning) and one leaf (evening) to get better results in controlling blood glucose.

Ailment: Asthma.

Plant part used: Rhizome.

Preparation and administration: Boil one rhizome using three glasses of water and inhale the steam.

Ailment: Constipation.

Plant part used: Rhizome.

Preparation and administration: Decoction prepared using an inch of rhizome and one teaspoon of jeera (*Cuminum cyminum*) in one and a half glasses of water is consumed orally.

Location: Mollas-Paroda.

***Magnolia champaca* L.**

Plant description: Large evergreen tree with intensely white or yellow flowers.

Family: Magnoliaceae.

Local Name: Sonchafa.

English Name: Champaca.

Ailment: Menstruation.

Plant part used: Flower.

Preparation and administration: Prepare a decoction using 3-4 flowers in one glass of water.

After it has cooled, the decoction is filtered and consumed for three days after the completion of the menstrual cycle.

Location: Avedem, Quepem.

***Eucalytus globulus* Labill.**

Plant description: Evergreen tree, 40-55 m tall; smoothish bark grey, brown, and greenish or bluish, peeling in long strips; leaves alternate, drooping on flattened, narrowly lance-shaped, hairless, shiny, and thick, aromatic odour; flowers numerous, white stamens, flattened stalk; fruits whitish, broad, thick, convex disc.

Family: Myrtaceae.

Local Name: Nilgiri.

English Name: Tasmanian blue gum.

Ailment: Fever.

Plant part used: Leaf.

Preparation and administration: Boil 15-28 leaves in half a bucket of water for 15 minutes and use for bathing.

Location: Peace Valley, Sirvoi, Quepem.

Cassia tora L.

Plant description: Herb; flowers yellow; pod dark brown, flattened, slightly curved upward at the edges with 10-30 seeds; brown olive seeds.

Family: Fabaceae.

Local Name: Taikilo.

English Name: Foetid Cassia.

Ailment: Fever.

Plant part used: Leaf.

Preparation and administration: Five leaves, partially roasted, are consumed orally.

Location: Quitol, Quepem.

Euphorbia milii Des Moul.

Plant description: A small, armed shrub with fleshy stem, long spines, and milky latex; leaves alternate, oblong, spine on branches; inflorescence cyathium; male flowers many, consisting of stalked stamen with two-anther lobes.

Family: Euphorbiaceae.

Local Name: Sanjao val.

English Name: Crown of Thorns.

Ailment: Jaundice.

Plant part used: Root.

Preparation and administration: Juice extracted from three grams of roots, along with little amount of water, is consumed orally. (Note: while consuming this paste, one should be vegetarian).

Ailment: Kidney stones.

Plant part used: Root.

Preparation and administration: Paste is prepared using five grams of roots, and the water extracted from the paste is consumed orally.

Location: Peace Valley, Sirvoi, Quepem.

***Holarrhena pubescens* (Roxb. ex Fleming) Wall.**

Plant description: Small shrub; leaves opposite; simple; flowers white with cymes; fruits with long paired follicles; seeds long, silky hairs.

Family: Apocynaceae.

Local Name: Nagarkudo.

English Name: Kutaja.

Ailment: Cold.

Plant part used: Bark.

Preparation and administration: Decoction was prepared using four grams of bark, five leaves of karate (*Andrographis paniculata*), and three neem (*Azadirachta indica*) leaves in two glasses of water and consumed orally twice a week in the evening.

Ailment: Stomach ache.

Plant part used: Bark.

Preparation and administration: Decoction prepared using two grams of bark and three guavas (*Psidium guajava*) leaves in one glass of water is consumed orally for two days.

Ailment: Arthritis/Joint pain.

Plant part used: Bark.

Preparation and administration: Paste prepared from two grams of fresh bark is applied to the affected part with a small amount of water.

Ailment: Swollen gums.

Plant part used: seed.

Preparation and administration: Seed powder is applied to the gums.

Ailment: Wounds (bleeding).

Plant part used: Latex.

Preparation and administration: Latex is applied to the affected part.

Location: Fatorpa, Quepem.

***Alstonia scholaris* L. R. Br**

Plant description: Evergreen tree, 40 m tall; bark grayish; stem glabrous; leaves upper side glossy, lower side grayish; seeds oblong, with ciliated margins, and ends with tufts of hairs 1.5-2 cm.

Family: Apocynaceae.

Local Name: Saton.

English Name: Indian devil tree.

Ailment: Stomach ache.

Plant part used: Bark.

Preparation and administration: Decoction is prepared using seven grams of bark in two glasses of water and consumed orally.

Ailment: Boils.

Plant part used: Latex.

Preparation and administration: Fresh latex is applied to the affected area.

Ailment: Mouth ulcer.

Plant part used: Latex.

Preparation and administration: Fresh latex is applied to the affected area.

Ailment: Skin inflammation.

Plant part used: Leaf.

Preparation and administration: Dry powder obtained from ten leaves. Little water is added and applied gently to an affected part.

Ailment: Asthma.

Plant part used: Bark.

Preparation and administration: Decoction prepared using two grams of bark in one glass of water is orally consumed in the morning for two weeks.

Ailment: Cardiac problem.

Plant part used: Bark.

Preparation and administration: Decoction prepared using four grams of bark, along with a half inch of ginger (*Zingiber officinale*), one amla (*Phyllanthus emblica*) in one glass of water, is consumed orally for one week.

Location: Xelvona, Quepem.

***Chrysanthemum indicum* L.**

Plant description: Annual; flowers golden-yellow, middle-sized flower heads.

Family: Asteraceae.

Local Name: Shevanti.

English Name: Chrysanthemum.

Ailment: Fever.

Plant part used: Flower.

Preparation and administration: Decoction from 5-8 flowers in two glasses of water is consumed orally for three days.

Ailment: Liver problem.

Plant part used: Flower.

Preparation and administration: Twenty flowers are kept in a closed vessel in two litres of hot water for 24 hours. One glass of filtered extract is consumed twice a week.

Ailment: Headache.

Plant part used: Flower.

Preparation and administration: Steamed is prepared using five flowers in one glass of water and is consumed orally.

Location: Morpilla, Quepem.

***Averrhoa bilimbi* L.**

Plant description: It is a small tree which grows up to 15m in height. Leaves are alternate, ovate to oblong; flower is fragrant, corolla of 5 petals 10-30 mm long, yellowish green to reddish purple.

Family: Oxalidaceae.

Local Name: Bimla.

English Name: Bilimbi.

Ailment: Rheumatism.

Plant part used: Leaf.

Preparation and administration: Paste prepared using eight leaves, and little water is applied to the affected part for two weeks.

Ailment: Boils.

Plant part used: Leaf.

Preparation and administration: Paste prepared using 8-10 leaves with little water applied to the affected part.

Location: Bendordem, Quepem.

Gloriosa superb L.

Plant description: Perennial herb; leaves simple, alternate or whorled, sessile, leaf tip ending in a tendril-like spiral; flowers large on long pedicles with wavy margins with upper half scarlet to crimson red and basal half bright yellow.

Family: Liliaceae.

Local Name: Wagachi nagta.

English Name: Glory lily.

Ailment: Neurological disorders.

Plant part used: Tuber.

Preparation and administration: Paste prepared using 4-6 tubers and a small amount of water and gently applied to the affected part.

Ailment: Skin rash.

Plant part used: Root.

Preparation and administration: Paste is prepared using two tubers, and a small amount of water is applied to the affected part.

Ailment: Piles.

Plant part used: Tuber.

Preparation and administration: Decoction prepared using 2-3 tubers in half a glass of water is consumed orally for a week.

Ailment: Deworming.

Plant part used: Tuber.

Preparation and administration: Decoction prepared using 2-3 tubers in half a glass of water is consumed orally.

Location: Balli, Quepem.

***Tagetas erecta* L.**

Plant description: It is an annual herb with height ranges from 30 -110 cm; roots are cylindrical, fibrous, shallow branching system; flowers are grouped in small heads in solitary inflorescences on peduncles.

Family: Asteraceae.

Local Name: Gondephool.

English Name: African marigold.

Ailment: Deworming.

Plant part used: Flower.

Preparation and administration: Decoction is prepared using four flowers in two cups of water and consumed orally.

Location: Adnem, Quepem.

***Urginia indica* (Roxb.) Kunth**

Plant description: Perennial herb grows to a height of 2.5ft; flowers sprout out before the leaves, and it appears like a bulb.

Family: Lilaceae.

Local Name: Jungli Kano.

English Name: Indian squill.

Ailment: Asthma.

Plant part used: Bulb.

Preparation and administration: Paste prepared using one bulb and half a teaspoon of honey and little water is consumed orally.

Ailment: Menstrual troubles.

Plant part used: The whole plant.

Preparation and administration: Decoction prepared using one whole plant in half a glass of water is consumed orally for two days.

Location: Corla, Quepem.

***Allium sativum* L.**

Plant description: Perennial, bulbous herb, grows up to 1m; hermaphrodite flowers; bulb is odoriferous, contains outer layers of thin sheathing leaves surrounding an inner sheath that encloses the clove.

Family: Liliaceae.

Local Name: Lasun.

English Name: Garlic.

Ailment: Blood pressure.

Plant part used: Bulb.

Preparation and administration: One fresh garlic clove is consumed orally in the early morning.

Plant part used: Boils.

Preparation and administration: Paste is obtained from 3-4 bulbs, using little water is applied to the affected part.

Location: Tiloi, Quepem.

***Naregamia alata* wight & Arn.**

Plant description: A suffruticose plant, one ft. in height; flowers white; leaves three foliolate; capsules three valved.

Family: Meliaceae.

Local Name: Pittamari.

English Name: Goanese.

Ailment: Vomiting.

Plant part used: Leaf.

Preparation and administration: Paste from 10-20 leaves is gently applied on the forehead. Decoction prepared using four mature leaves in half a glass of water is consumed twice a day orally.

Ailment: Vomiting.

Plant part used: Root.

Preparation and administration: Paste from 10-20 leaves is gently applied on the forehead.

Location: Cazur, Quepem.

***Syzygium aromaticum* L. Merrill & Perry.**

Plant description: Evergreen tree; flowers numerous in terminal clusters, flower buds pale coloured and develop into bright red.

Family: Myrtaceae.

Local Name: Lavang.

English Name: Cloves.

Ailment: Toothache.

Plant part used: Bud.

Preparation and administration: Dried powder is obtained from three-four buds, mixed with little water, and chewed.

Location: Maina, Quepem.

***Ensete superburn* Roxb. Cheesman**

Plant description: Erect shrub with unbranched globose leaf sheaths; leaves green on both sides; flowers many on each bract; unisexual; fruit oblong; seeds few, subglobose, black.

Family: Musaceae.

Local Name: Rankel.

English Name: Wild banana.

Ailment: Diabetes.

Plant part used: Fruit.

Preparation and administration: Fresh fruit is consumed twice a day orally.

Ailment: Kidney stones.

Plant part used: Seed.

Preparation and administration: Powder obtained using a handful of seeds is mixed with half a cup of water and consumed orally for two weeks.

Ailment: Dysentery.

Plant part used: Seed.

Preparation and administration: Powder obtained using a handful of seeds in half a cup of water is consumed orally.

Location: Dabem, Quepem.

***Erythrina variegata* L.**

Plant description: Tree, grows up to 60 ft. with spreading crown; inflorescence with many flowered fascicles occurs in terminal racemes up to 20cm; leaves trifoliate, alternate; rachis is 10-20cm long; fruit compressed, narrowly oblong pod, 10–14 cm; seeds kidney-shaped, dark purple to red.

Family: Fabaceae.

Local Name: Pongero.

English Name: Indian coral tree.

Ailment: Black spots on the skin.

Plant part used: Bark.

Preparation and administration: Paste prepared using three grams of bark, and little water is applied to the affected part.

Location: Morpilla, Quepem.

***Ficus bengalensis* L.**

Plant description: Evergreen tree, epiphytic with numerous aerial roots from the branches, bark grayish brown, smooth; leaves elliptic-ovate, 5-8 cm long, margin entire; male flowers numerous near the mouth of the receptacle, perianth segments 4, stamens 1; fruit scarlet red when ripe.

Family: Moraceae.

Local Name: Vhod.

English Name: Banyan tree.

Ailment: Muscle pain.

Plant part used: Latex.

Preparation and administration: Plaster prepared using latex on paper is applied to the affected part.

Location: Chandreshwar, Bhutnath, Quepem.

***Talium paniculatum* (Jacq.)Gaertn**

Plant description: Erect, herbaceous, perennial plant producing mainly unbranched stems up to 1m tall from a tuberous rootstock; stems sometimes become softly woody.

Family: Talinaceae.

Local Name: Saloni.

English Name: Fame flower.

Ailment: Diuretic.

Plant part used: Leaf.

Preparation and administration: Juice obtained from 7-9 leaves using little water is consumed twice a day orally.

Location: Xelvona, Quepem.

Agave Americana L.

Plant description: Leaves thick and massive grey-blue with sharp spines on the margins; flowers large yellow-green.

Family: Asparagaceae.

Local Name: Ghaypat.

English Name: Century plant.

Ailment: Bleeding wound.

Plant part used: Leaf.

Preparation and administration: Paste obtained from one leaf using little water is applied to the affected part.

Location: Balli, Quepem.

***Tridax procumbens* L.**

Plant description: Prostrate herb grows up to 50 cm; leaves opposite, simple, borne on hairy petiole; leaf blades are dark green, thick, and soft; flowers yellow and tubulate while ray floret is creamy white; fruit is a conical achene.

Family: Asteraceae.

Local Name: Mutkodo.

English Name: Coat buttons.

Ailment: Kidney stone.

Plant part used: Leaf.

Preparation and administration: Juice extracted from four leaves and half a teaspoon of salt in half a glass of water is consumed twice a day for a week orally.

Location: Avedem, Quepem.

***Morinda citrifolia* L.**

Plant description: Evergreen tree with a conical crown, bark grayish or yellowish-brown; leaves opposite, simple, glabrous, and broadly triangular; Inflorescences globose heads; fruit an ovoid syncarp of red-brown, 2-seeded drupes.

Family: Rubiaceae.

Local Name: Noni.

English Name: Indian mulberry.

Ailment: Cancer.

Plant part used: Fruit.

Preparation and administration: Fresh ripe fruit is consumed orally.

Ailment: Piles.

Plant part used: Leaf.

Preparation and administration: Juice extracted from eight leaves is mixed in half a glass of water and consumed orally thrice a day.

Location: Mollus-Paroda, Quepem.

***Euphorbia hirta* L.**

Plant description: Annual herb grows up to 60 cm with a solid, hairy stem, producing abundant white latex; stipules present; leaves simple, elliptical, hairy with dentate margin; fruit a capsule, has tiny, oblong, four-sided red seeds.

Family: Euphorbiaceae.

Local Name: Dudurli.

English Name: Asthma plant.

Ailment: Asthma.

Plant part used: Leaf.

Preparation and administration: Decoction prepared using 10-12 leaves in one glass of water is consumed orally twice a week.

Ailment: Kidney stones.

Plant part used: Leaf.

Preparation and administration: Juice extracted from 9-15 leaves and little water is consumed orally in the morning for a week.

Ailment: Bleeding wound.

Plant part used: The whole plant.

Preparation and administration: Paste prepared from one whole plant, using little water, is gently applied to the affected part.

Location: Dabem-Morphilla, Quepem.

***Jasminum multiflorum* (L.) Aiton**

Plant description: Evergreen shrub; leaves ovate; flowers scented, corolla white with five-nine lobes.

Family: Oleaceae.

Local Name: Bhatmogra.

English Name: Star Jasmine.

Ailment: Menstrual discharge.

Plant part used: Root.

Preparation and administration: Decoction prepared from five grams of roots in one glass of water is consumed orally daily.

Location: Quitol, Quepem.

***Fraxinus velutina* Torr**

Plant description: Small deciduous tree, grows up to 10m, rough bark gray-brown; leaves 10-25cm long, pinnately compound; flowers produced in clusters; fruit a samara.

Family: Oleaceae.

Local Name: Lingdo.

English Name: Velvet ash.

Ailment: Flatulence in children.

Plant part used: Leaf.

Preparation and administration: Decoction from 10 dried leaves in one and a half glasses of water is consumed orally twice a week.

Location: Padi, Quepem.

***Bryophyllum pinnatum* (Lam.)**

Plant description: Succulent perennial herb, grows up to 1-2m; stem thick, flexible, short; flowers pink or purple; fruit a cymose panicle.

Family: Crassulaceae.

Local Name: Panfuti.

English Name: Miracle Leaf.

Ailment: Asthma.

Plant part used: Leaf.

Preparation and administration: Extract juice from seven leaves, to which half a glass of water is added and consumed orally.

Ailment: Fever.

Plant part used: Leaf.

Preparation and administration: Juice extracted from 7-14 leaves in half-glass water is consumed orally.

Ailment: Blood pressure.

Plant part used: Root.

Preparation and administration: Juice extracted from five grams of roots, with little water, is consumed twice a day orally.

Ailment: Roundworm.

Plant part used: Root.

Preparation and administration: Paste obtained using three to five grams of roots, and a little water is applied to the affected part.

Ailment: Cardiac problem.

Plant part used: Leaf.

Preparation and administration: Extract juice from 10 leaves. Add half a glass of water and consume it orally.

Location: Nagvem, Quepem.

***Ficus luschnathiana* (Miq.)**

Plant description: Deciduous tree with dense, wide, roundish crown grows 12-26 m.

Family: Moraceae.

Local Name: Rondorgar.

English Name: Fig tree.

Ailment: Arthritis.

Plant part used: Leaf.

Preparation and administration: Paste obtained from three leaves, using little water, is applied directly on the affected part.

Location: Molcarnem, Quepem.

***Melissa officinalis* L.**

Plant description: Perennial herb grows 50cm, branching, sparsely-haired stalk; leaves broadly oval to heart-shaped, have an irregular crenate; flowers pale white labial, 1cm in size.

Family: Lamiaceae.

Local Name: Kidney Stone.

English Name: Lemon balm.

Ailment: Kidney stone

Plant part used: Leaf.

Preparation and administration: Juice is obtained from 13-20 leaves using little water and orally consumed.

Location: Chandreshwar, Bhutnath, Quepem.

***Terminalia catappa* L.**

Plant description: Tree with branches in horizontal whorls; bark is gray to gray-brown; leaves obovate; fruit a drupe; kernels edible.

Family: Combretaceae.

Local Name: Desi Badam.

English Name: Singapore Almond.

Ailment: Diuretic.

Plant part used: Bark.

Preparation and administration: Extract juice from three grams of bark. Add little water and consume it orally in the morning for a week.

Ailment: Hairfall.

Plant part used: Kernel.

Preparation and administration: Boil 20-30 kernels in a half-litre of coconut (*Cocos nucifera*) oil, cool, and apply to the affected part.

Ailment: Liver diseases.

Plant part used: Leaf.

Preparation and administration: Decoction prepared from 8-9 leaves, using one glass of water, is consumed orally for three days.

Location: Morpilla, Quepem.

***Hemidesmus indicus* L.R.Br**

Plant description: Herbs with many tender wiry lactiferous branches; leaves simple, opposite, linear, lanceolate; flowers greenish or greenish purple in sub-sessile fascicles; seeds oblong flattened, brownish white.

Family: Apocynaceae.

Local Name: Dudhshiri.

English Name: Sarsaparilla.

Ailment: Swollen eyes.

Plant part used: Latex.

Preparation and administration: Fresh latex is applied to the affected part.

Ailment: Urinary disorders.

Plant part used: Root.

Preparation and administration: Decoction prepared from four grams of roots in two glasses of water is consumed twice a day for a week orally.

Ailment: Blood purifier.

Plant part used: Root.

Preparation and administration: Juice is obtained from 4-5 grams of roots in half a glass of water and is consumed orally weekly in the morning.

Ailment: Diarrhoea.

Plant part used: Root.

Preparation and administration: Decoction prepared using three grams of roots in two glasses of water is consumed orally.

Location: Ambaulim, Quepem.

***Artemisia parviflora* Roxb.**

Plant description: Perennial herb grows 1-2m; leaves dark green, pinnate, and sessile, with white tomentose hairs on the underside; erect stem has red-purplish tinge; small florets symmetrical with many yellow petals.

Family: Asteraceae.

Local Name: Manpatri.

English Name: Mugwort.

Ailment: Menstrual discharge.

Plant part used: Whole plant.

Preparation and administration: Decoction is prepared using a whole plant in half a litre of water. It is then cooled, and 10ml is consumed twice a day for a week orally.

Ailment: Stomachic.

Plant part used: Leaf.

Preparation and administration: Using hot water, boil 10-16 leaves in an earthen vessel. The solution is cooled, and 10-15ml is consumed every day.

Location: Dabem, Quepem.

***Abrus precatorius* L.**

Plant description: Climbing, twinning woody vine with slender herbaceous branches; leaves alternate, even pinnately compound with 5-15 pairs of leaflets; flowers shaped like pea flowers, white to reddish, small; fruit a short, oblong pod, 6-7mm long with black bases.

Family: Fabaceae.

Local Name: Gunji.

English Name: Coral bead vine.

Ailment: Eye infection.

Plant part used: Root.

Preparation and administration: Paste is prepared with two roots and (*Coriandrum sativum*) seeds using little water. It is then boiled in two glasses of water and consumed orally twice weekly.

Ailment: Fever.

Plant part used: Leaf.

Preparation and administration: Decoction prepared using eight mature leaves in one glass of water is consumed orally.

Location: Mollus, Paroda, Quepem.

***Jatropha curcas* L.**

Plant description: Small tree, bark green, peeling off in thin papery flakes; leaves alternate, simple, long petiole, palmately five-lobed; flowers yellowish green in axillary cymes.

Family: Euphorbiaceae.

Local Name: Errand.

English Name: Physic nut.

Ailment: Bleeding wound.

Plant part used: Stem.

Preparation and administration: Fresh juice extracted from two stems, using little water, is applied to the affected part.

Ailment: Ulcers.

Plant part used: Stem.

Preparation and administration: Dried stem decoction prepared in half a glass of water is consumed twice a day orally.

Location: Balli-Vontem, Quepem.

***Garcinia indica* L.**

Plant description: Medium-sized tree with drooping branches and linear crown; leaves dark green, juvenile being red and membranous; fruits spherical, purplish red when fully ripe; seeds 5-8, compressed, enclosed in the pulp.

Family: Clusiaceae.

Local Name: Bhirand.

English Name: Kokum butter tree.

Ailment: Leg cracks.

Plant part used: Seed.

Preparation and administration: Dried seeds powder is mixed in coconut (*Cocos nucifera*) oil and applied to the affected part.

Ailment: Digestion.

Plant part used: Fruit.

Preparation and administration: Decoction is prepared using 5-7 dried fruit rind, half a teaspoon of jeera, two cloves of garlic (*Allium satium*), and half a teaspoon of salt in one glass of water is consumed orally in the evening every day.

Location: Xelvona, Quepem.

Punica granatum L.

Plant description: Deciduous shrub, grows 5- 10m high, multiple spiny branches; leaves opposite, glossy, narrow, oblong, broad; flowers bright red, with three to seven petals.

Family: Lythraceae.

Local Name: Dalimb.

English Name: Pomegranate.

Ailment: Dysentery.

Plant part used: Fruit.

Preparation and administration: Juice extracted from ripe fruit with little water is consumed orally.

Location: Sirvoi, Quepem.

Azadirachta indica L.

Plant description: Large evergreen tree, stout trunk; leaves pinnate with serrate margin, bright green, shining at both sides; flowers white, scented; fruit drupe, ovoid-oblong, smooth, one-seeded, dark purple when ripe.

Family: Meliaceae.

Local Name: Kodunim.

English Name: Margosa tree.

Ailment: Ulcers.

Plant part used: Leaf.

Preparation and administration: Decoction is prepared from 10-20 leaves, using one glass of water consumed orally thrice a day.

Ailment: Boils.

Plant part used: Leaf.

Preparation and administration: Paste prepared from 12 mature leaves, and little water is applied gently to the affected part.

Ailment: Toothache.

Plant part used: Twig.

Preparation and administration: Fresh tender twigs are used to clean teeth twice daily.

Ailment: Fever.

Plant part used: Bark.

Preparation and administration: Decoction prepared from three grams of bark in one glass of water is consumed orally for a week.

Ailment: Jaundice.

Plant part used: Leaf.

Preparation and administration: Decoction prepared using four leaves in one glass of water is consumed orally.

Ailment: Bronchitis.

Plant part used: Bark.

Preparation and administration: Decoction prepared using five grams of bark in one glass of water is consumed orally.

Location: Gocoldem, Quepem.

***Datura inoxia* Mill.**

Plant description: Annual shrub; stems and leaves covered with soft hairs; flowers white, trumpet-shaped.

Family: Solanaceae.

Local Name: Dhutro.

English Name: Datura.

Ailment: Dog bite.

Plant part used: Leaf.

Preparation and administration: Paste prepared from six mature leaves and little water is applied to the affected part.

Location: Mollus, Paroda, Quepem.

***Crossandra infundibuliformis* (L.) Nees**

Plant description: An evergreen, shrub, grows up to 1m tall, leaves narrowly ovate; flowers arranged in terminal inflorescence; fruits ellipsoid to oblong.

Family: Acanthaceae.

Local Name: Aboli.

English Name: Firecracker flower.

Ailment: Wound healing.

Plant part used: Leaf.

Preparation and administration: Paste is obtained from eight leaves, using little water, and gently applied to the affected area.

Location: Mangal, Quepem.

***Leucas aspera* (Wild.) Link**

Plant description: Annual herb; leaves linear, obtuse; stem quadrangular; flowers white, sessile.

Family: Lamiaceae.

Local Name: Tumo.

English Name: Thumbai.

Ailment: Skin disease/infection.

Plant part used: The whole plant.

Preparation and administration: Paste is obtained using three whole plants, half a teaspoon of aloe vera gel (*Aloe barbadensis*), three leaves of neem (*Azadirachta indica*), add little water, mix well, and apply to the affected part.

Location: Quitol, Quepem.

***Oryza sativum* L.**

Plant description: Herbs; leaves linear lanceolate, acute at apex. Inflorescence terminal panicle; grain enclosed by lemma and palea, which varies in size, texture, and colour; each panicle holds 100 -150 seeds.

Family: Poaceae.

Local Name: Bhaat.

English Name: Rice.

Ailment: Fever.

Plant part used: Seed.

Preparation and administration: Rice kanji is prepared and consumed orally.

Ailment: Urinary tract infection.

Plant part used: Seed.

Preparation and administration: Rice kanji is prepared and consumed twice a day orally.

Location: Molcozona, Quepem.

***Catharanthus roseus* (L.) G Don**

Plant description: Herb; leaves are dark green, glossy, opposite; flowers are white to dark pink; fruit a pair of follicles.

Family: Apocynaceae.

Local Name: Sadaphuli.

English Name: Madagascar periwinkle.

Ailment: Cancer.

Plant part used: Flower.

Preparation and administration: Decoction prepared using 5-7 flowers in half a glass of water is consumed orally for a week.

Location: Sulcorna, Quepem.

***Allamanda cathartica* L.**

Plant description: Evergreen trees; leaves opposite, blades oval and smooth edges with leathery hairy; inflorescence cyme; flower has funnel-shaped corolla.

Family: Apocynaceae.

English Name: Yellow Allamanda.

Ailment: Jaundice.

Plant part used: Root.

Preparation and administration: Juice extracted using four grams of root with little water is consumed orally.

Location: Tiloi, Quepem.

***Cymbopogon citratus* (L.) Spreng**

Plant description: Perennial grass; leaves linear and tapering towards the sheath; inflorescence a panicle.

Family: Poaceae.

Local Name: Ganjan.

English Name: Lemon grass.

Ailment: Cough.

Plant part used: Leaf.

Preparation and administration: Decoction prepared using seven leaves, along with half a teaspoon of honey in one glass of water, is consumed daily.

Location: Pirla, Quepem.

***Carica papaya* L.**

Plant description: Stem with spirally arranged leaves confined to the top of the trunk.

Family: Caricaceae.

Local Name: Popay.

English Name: Papaya.

Ailment: Cancer.

Plant part used: Seed.

Preparation and administration: One teaspoon of fresh seeds is consumed orally.

Location: Molcarnem, Quepem.

***Leea indica* (Burm. f.) Merr.**

Plant description: Shrub, grows up to 10 feet; leaves 2 pinnate, leaflets oblong; flowers are small, white, branches corymbose cymes; fruit globular berry, purple black when ripe and smooth.

Family: Vitaceae.

Local Name: Gino/Dino.

English Name: Bandicoot berry.

Ailment: Diarrhoea.

Plant part used: Leaf.

Preparation and administration: Paste prepared from seven leaves, along with little water, is consumed orally.

Location: Dabem, Quepem.

***Citrus limon* (L.) Osbeck Modernism**

Plant description: Small evergreen tree; leaves large, oblong, light green leaves; fruit is ellipsoid berry surrounded by green rind, ripens to yellow.

Family: Rutaceae.

Local Name: Limbu.

English Name: Lemon.

Ailment: Common cold.

Plant part used: Fruit.

Preparation and administration: Decoction is obtained by squeezing the fruit and half a teaspoon of honey in half a glass of water consumed orally.

Location: Balli, Quepem.

***Ocimum tenuiflorum* L.**

Plant description: Herb; leaves dark green, opposite, entire, toothed with minute glands; flowers purplish-pink, small in terminal, closely whorled racemes.

Family: Lamiaceae.

Local Name: Tulas.

English Name: Holy basil.

Ailment: Cough.

Plant part used: Leaf.

Preparation and administration: Decoction from 8-10 leaves in half a glass of water is consumed orally.

Ailment: Piles.

Plant part used: Seed.

Preparation and administration: Decoction prepared from a handful of seeds in half a glass of water is consumed orally.

Location: Undora, Quepem.

***Coriandrum sativum* L.**

Plant description: Herb grows up to 50cm; leaves broadly lobed at the base of the plant; flowers are borne in small umbels, white or pale pink; fruit globular.

Family: Apiaceae.

Local Name: Kothmir.

English Name: Corriander.

Ailment: Sore eyes.

Plant part used: Seed.

Preparation and administration: Four teaspoons of seeds are soaked in half a glass of water for 12 hours, and then the solution is applied to the affected part.

Location: Sulcorn, Quepem.

***Tinospora cordifolia* (Thunb.) Miers**

Plant description: Perennial herb; leaves broadly obvate, deeply cordate and short acuminate, glabrous; flowers yellow, unisexual; fruit drupe, pea sized, red when ripe.

Family: Menispermaceae.

Local Name: Gulvel.

English Name: Indian Tinospora.

Ailment: Diabetes.

Plant part used: Stem.

Preparation and administration: Juice extracted from four grams of the stem, using little water, is consumed orally thrice a week.

Ailment: Blood pressure.

Plant part used: Stem.

Preparation and administration: Juice obtained with two-three grams of the stem, using little water, is consumed orally.

Location: Quedem, Quepem.

***Curcuma comosa* Roxb.**

Plant description: Herbaceous perennial plant, it produces a clump of unbranched, leafy pseudo-stems around 150 - 180cm tall.

Family: Zingiberaceae.

Local Name: Ranathli hald.

English Name: Hill turmeric.

Ailment: Cancer.

Plant part used: Leaf.

Preparation and administration: Decoction prepared using two leaves in two glasses of water is consumed twice a day for a week orally.

Ailment: Menstrual disorders.

Plant part used: Leaf.

Preparation and administration: Decoction prepared using two leaves in two glasses of water is consumed orally daily for a week.

Location: Barcem, Quepem.

***Arundinella gigantean* Dalz.**

Plant description: Evergreen, clump-forming grass with short, scaly rhizomes; it produces slender to stout, erect culms usually 90 - 200cm tall, occasionally to 300cm. The plant is harvested from the wild for local use as a thatch.

Family: Gramineae.

Local Name: Jivnal.

English Name: Slender Tall Reedgrass.

Ailment: Bowl complaints.

Plant part used: Tender leaf.

Preparation and administration: Juice extracted from the whole plant using little water is consumed orally.

Location: Assolda, Quepem.

***Anacardium occidentale* L.**

Plant description: A small sized tree with crooked trunk, drooping branches; leaves broad, flowers small, pinkish; fruit reniform grey.

Family: Anacardiaceae.

Local Name: Kaju.

English Name: Cashew.

Ailment: Ringworms.

Plant part used: Seed.

Preparation and administration: Paste obtained from one seed is applied externally to the affected area.

Ailment: Wound.

Plant part used: Fruit.

Preparation and administration: Paste obtained from one dry fruit is applied to the affected area.

Location: Ambaulim, Quepem.

***Ulmus rubra* Muhl.**

Plant description: Deciduous tree, grows up to 12-19 metres in height; leaves tinged red on emergence, turning dark green in summer; fruit is reddish brown, oval-winged samara.

Family: Ulmaceae.

Local Name: Adma.

English Name: Red Elm.

Ailment: Plaster for fractured bones.

Plant part used: Bark.

Preparation and administration: Paste obtained from four grams of bark, one egg and two teaspoons of honey, is applied to the affected part.

Location: Chandreshwar, Bhutnath, Quepem.

***Lagenaria siceraria* (Mollina) Standl.**

Plant description: Leaves simple, alternate; flowers are white, dense foliage; fruit fleshly.

Family: Cucurbitaceae.

Local Name: Kokodudin.

English Name: Bottle gourd.

Ailment: Head ache.

Plant part used: Leaf.

Preparation and administration: A poultice of crushed leaves is applied to the affected part.

Location: Nagvem, Quepem.

***Cereus repandus* Mill.**

Plant description: Cylindrical gray-green to blue stems, plant grows up to 10 meters in height, gray, needle-like thorns are very variable; flowers large, cream-coloured, nocturnal; fruits small, edible; seeds crunchy.

Family: Cactaceae.

Local Name: Vhodlo cactus.

English Name: Hedge cactus.

Ailment: Skin infection.

Plant part used: Leaf.

Preparation and administration: Leaf gel is extracted and applied to the affected part.

Location: Cotombi, Quepem.

***Centella asiatica* (L.) Urban**

Plant description: Stems slender, creeping stolon, green to reddish-green in colour; leaves borne on pericladal petioles; flowers white to red in colour, small, rounded bunches; fruits densely reticulate.

Family: Apiaceae.

Local Name: Gunduri/ Meri.

English Name: Asiatic pennywort.

Ailment: White discharge.

Plant part used: Leaf.

Preparation and administration: Decoction prepared using eight leaves in one glass of water is consumed orally.

Ailment: Tuberculosis.

Plant part used: Leaf.

Preparation and administration: One teaspoon of dry powder of leaves is added to half a glass of water and consumed twice a day for a week.

Location: Sirvoi, Quepem.

***Clenodendrum paniculatum* L.**

Plant description: Shrub. Leaves simple, decussate-opposite, sessile; inflorescence axillary cyme, terminal corymb; flowers bisexual, fruit drupaceous; seeds pyrenes, non-endospermic.

Family: Lamiaceae.

Local Name: Rogta full.

English Name: Pagota flower.

Ailment: Fever.

Plant part used: Root.

Preparation and administration: Decoction obtained using two grams of roots in half a glass of water is consumed orally.

Ailment: Sore throat.

Plant part used: Root.

Preparation and administration: Decoction obtained using two-three grams of roots in half a glass of water is consumed orally.

Location: Pirla, Quepem.

***Artocarpus heterophyllus* Lam.**

Plant description: An evergreen tree with a short trunk and dense treetop; bark reddish-brown and smooth; leaves alternate and spirally arranged.

Family: Moraceae.

Local Name: Ponos.

English Name: Jackfruit.

Ailment: Fever.

Plant part used: Leaf.

Preparation and administration: Decoction prepared using 7-11 leaves in one glass of water is consumed orally.

Location: Cordem, Quepem.

***Bombax ceiba* L.**

Plant description: Flowers cup-shaped solitary, axillary, fascicles at the ends of branches; fruit light-green when immature, brown when mature; seeds numerous, long, ovoid, black or grayish.

Family: Bombacaceae.

Local Name: Sanvor.

English Name: Red silk cotton tree.

Ailment: Fever.

Plant part used: Bark.

Preparation and administration: One glass of decoction prepared using 5-6 bark pieces by grinding is consumed orally.

Location: Chandreshwar, Bhutnath, Quepem.

***Amaranthus tricolor* L.**

Plant description: Annual with deep purple flowers, grows 2-3 feet tall.

Family: Amaranthaceae.

Local Name: Tambdi bhaji.

English Name: Red Amaranth.

Ailment: High cholesterol.

Plant part used: Leaf.

Preparation and administration: Eaten daily as a vegetable.

Location: Xis -Xelvona, Quepem.

***Linum usitatissimum* L.**

Plant description: 1.2 meters tall, with slender stems; leaves glaucous green, slender, lanceolate; flowers 15-25 mm in diameter; fruit round, dry capsules, brown seeds.

Family: Linaceae.

Local Name: Pulma.

English Name: Common flax.

Ailment: Cough.

Plant part used: The whole plant.

Preparation and administration: Decoction prepared using the whole plant in half a glass of water is consumed orally.

Location: Cazur, Quepem.

***Nyctanthes arbor-tristis* L.**

Plant description: Small tree growing up to 10 m tall, with flaky grey bark; leaves opposite; flowers five-eight lobed, white corolla with orange-red centre.

Family: Oleaceae.

Local Name: Parijat.

English Name: Night-flowering Jasmine.

Ailment: Blood circulation.

Plant part used: Leaf.

Preparation and administration: Decoction from 6-7 leaves in a half glass of water is consumed orally twice a week.

Location: Sirvoi, Quepem.

***Hippeastrum puniceum* (Lam.) Voss**

Plant description: leaves are not fully developed when flowers appear; flowers borne in an umbel on the stem, 40-60 cm tall.

Family: Amaryllidaceae.

English Name: Easter Lily.

Ailment: Stomach ache.

Plant part used: Bulb.

Preparation and administration: Decoction prepared using one bulb in half a glass of water is consumed orally.

Location: Fatorpa, Quepem.

***Mimosa pudica* L.**

Plant description: An underground, stems branched sparingly prickly and clothed with long weak bristles, bulbous base; leaves sensitive; flowers are globose heads, pink.

Family: Fabaceae.

Local Name: Laje zad.

English Name: Touch-me-not plant.

Ailment: Kidney stone.

Plant part used: Flower.

Preparation and administration: Decoction prepared from 10-16 flowers in one glass of water is consumed orally twice daily for two weeks.

Location: Padi, Quepem.

***Getonia floribunda* Roxb.**

Plant description: Shrub; leaves ovoid; flowers occur in dense clusters at the end of branches; fruits enlarge into the fluffy wing 10-14 mm in length.

Family: Combretaceae.

Local Name: Uski.

English Name: Paper flower climber.

Ailment: Malaria.

Plant part used: Leaf.

Preparation and administration: Decoction prepared using six leaves in half a glass of water is consumed orally.

Location: Balli, Quepem.

***Artocarpus altilis* (Parkinson) Fosberg**

Plant description: Monoecious tree, grows to 26 meters in height; leaves thick, large with pinnate lobes; fruit an achene.

Family: Moraceae.

Local Name: Nirponas

English Name: Breadfruit.

Ailment: Skin boils.

Plant part used: Leaf.

Preparation and administration: Paste obtained from one leaf, using little water, is applied to the affected part.

Location: Gocoldem, Quepem.

***Mangifera indica* L.**

Plant description: Tall tree, dark bark grey, furrowed; leaves oblong-lanceolate, crowded at the ends of branches forming an evergreen canopy.

Family: Anacardiaceae.

Local Name: Aamo.

English Name: Mango.

Ailment: Diarrhoea

Plant part used: Leaf.

Preparation and administration: Paste obtained from six tender leaves in one glass of water is consumed twice a day orally.

Location: Ambaulim, Quepem.

***Ipomoea batatas* (L.) Lam.**

Plant description: Herbaceous perennial vine; stems form adventitious roots and nodes; flowers sympetalous; leaves green.

Family: Convolvulaceae.

Local Name: Konga.

English Name: Sweet potato.

Ailment: Diabetes.

Plant part used: Tender leaf.

Preparation and administration: Decoction prepared using seven tender leaves in one glass of water is consumed orally.

Location: Naquerim, Quepem.

***Ficus religiosa* L.**

Plant description: Semi-evergreen tree, grows up to 30 meters tall; leaves cordate with distinctive extended drip tip; fruits small figs, 1-1.5 centimeters in diameter, green turns purple on ripening.

Family: Moraceae.

Local Name: Pipal.

English Name: Sacred fig.

Ailment: Cancer.

Plant part used: Root.

Preparation and administration: One teaspoon of root powder and half a teaspoon of honey in one glass of warm water are consumed orally.

Ailment: Cardiac problem.

Plant part used: Leaf.

Preparation and administration: Juice obtained from eight leaves and half a teaspoon of honey is consumed orally.

Location: Maina, Quepem.

***Pandanus tectorius* Parkinson ex Du Roi**

Plant description: Small tree, grows up to 4-14m in height; trunk slender with brown ringed bark; leaves have spines along the edges and ribs, spirally arranged; fruit is ovoid, ellipsoid, globose with a diameter 4-20cm.

Family: Pandanaceae.

Local Name: Kevda.

English Name: Hala tree.

Ailment: Cough.

Plant part used: Leaf.

Preparation and administration: Dried leaves are wrapped and smoked as cigarettes.

Location: Chaifi, Quepem.

***Ficus racemosa* L.**

Plant description: Tree grows up to 18 meters in height; leaves ovate-oblong and tapering to a blunt point at the apex, with entire margins and shiny leaf surfaces when mature; fruits in clusters, round and pink or red, when ripe.

Family: Moraceae.

Local Name: Rumod.

English Name: Cluster fig.

Ailment: Bilious affections.

Plant part used: Leaf.

Preparation and administration: Half a teaspoon of dried leaves powder, along with half a teaspoon of honey, is consumed orally.

Location: Mangal, Quepem.

***Ziziphus mauritiana* Lam.**

Plant description: Leaves alternate, ovate, or oblong elliptic with rounded apex, with longitudinal veins at the base, glossy and dark green; flowers tiny, yellow; white or greenish white; fruits orange to brown.

Family: Rhamnaceae.

Local Name: Bora.

English Name: Indian Plum.

Ailment: Biliousness.

Plant part used: Fruit.

Preparation and administration: Ripe fruit is orally consumed.

Location: Morpila, Quepem.

***Piper betle* L.**

Plant description: An evergreen, dioecious vine; leaves glossy, heart-shaped.

Family: Piperaceae.

Local Name: Kavchepan.

English Name: Betel.

Ailment: Skin infection.

Plant part used: Leaf.

Preparation and administration: Paste obtained from six leaves, using little water, is applied to the affected part.

Location: Xelvona, Quepem.

***Vaccinium arboretum* Marshall**

Plant description: A shrub grows to 3-5 metres tall; leaves ovate-elliptic with acute apex; flowers white, bell-shaped with five-lobed corolla; fruit berry, black when ripe.

Family: Ericaceae.

Local Name: Porpotto.

English Name: Farkleberry.

Ailment: Cough.

Plant part used: The whole plant.

Preparation and administration: Decoction prepared using four entire plants in one glass of water is consumed orally.

Location: Chandreshwar, Bhutnath, Quepem.

***Simarouba glauca* DC.**

Plant description: A flowering tree; flowers yellow; fruits oval elongated purple coloured freshy.

Family: Simaroubaceae.

Local Name: Patchouli.

English Name: Paradise Tree.

Ailment: Cancer.

Plant part used: Leaf.

Preparation and administration: Decoction prepared using 10-11 leaves in two cups of water is consumed orally.

Location: Bendordem, Quepem.

***Syzygium cumii* (L.) Skeels**

Plant description: Evergreen tree; leaves simple, ovate-lanceolate, leathery, glabrous; flowers numerous, small, sweet-scented, dull and terminal panicle cymes; fruits oblong berry, dark purplish black when ripe; seed smooth, roundish.

Family: Myrtaceae.

Local Name: Jambal.

English Name: Java Plum.

Ailment: Diabetes.

Plant part used: Seed.

Preparation and administration: One teaspoon of seed powder is mixed in half a glass of water and consumed orally twice daily.

Location: Nagvem, Quepem.

***Terminalia arjuna* (Roxb.) Wight & Arn.**

Plant description: Deciduous tree with spreading crown and drooping branches; bark grey to pinkish green, smooth and thin; leaves 10-15cm long, reticulate, rounded base; flowers sessile; fruit fibrous, woody drupe.

Family: *Combretaceae*.

Local Name: Arjun.

English Name: Arjuna Tree.

Ailment: Diabetes.

Plant part used: Bark.

Preparation and administration: Decoction prepared using three grams of bark, and half a teaspoon of milk, in one glass of water is consumed orally.

Ailment: Bone fracture.

Plant part used: Bark.

Preparation and administration: Paste obtained by crushing 4-10 grams of bark skin, four black pepper (*Piper nigrum*), half a teaspoon of honey, and six teaspoons of cashew (*Anacardium occidentale*) feni is gently applied on the affected part until it dries.

Location: Zanodem, Quepem.

***Justicia adhatoda* L.**

Plant description: Shrub; leaves lance-shaped, 8-9 cm long, oppositely arranged, smooth edges, born on petioles and have tiny glandular hairs; flowers white, inflorescence with large, dense, axillary spikes; fruits pubescent with club-shaped capsules.

Family: Acanthaceae.

Local Name: Adulsa.

English Name: Malabar nut.

Disease/Ailment: Fever.

Plant part used: Leaf.

Preparation and administration: Half a bucket of water boiled by adding 15-28 leaves for 15 minutes is used for bathing.

Disease/Ailment: Tuberculosis.

Plant part used: leaf.

Preparation and administration: One teaspoonful of honey is added to the juice extracted from 10-15 leaves and consumed orally for two weeks.

Disease/Ailment: High blood pressure, Heart-stroke.

Plant part used: leaf.

Preparation and administration: Oil is extracted by roasting 25 leaves. Add ¼ liter of coconut oil, three tablespoons of mustard seeds, and one garlic bulb. The resultant mixture is massaged to the whole body twice a week.

Location: Medka, Quepem.

***Cocos nucifera* L.**

Plant description: Tree, grows up to 30 meters tall; leaves 4-6m long, pinnate, trunk is smooth; fruit a drupe.

Family: Arecaceae.

Local Name: Naal.

English Name: Coconut.

Ailment: Kidney problem.

Plant part used: Nut.

Preparation and administration: Tender coconut water is consumed orally.

Location: Zanodem, Quepem.

***Musa paradisiaca* L.**

Plant description: Herb; leaves with parallel venation; inflorescence a spike.

Family: Musaceae.

Local Name: Kel.

English Name: Banana.

Ailment: Kidney stone.

Plant part used: Inflorescence.

Preparation and administration: Vegetable is prepared using the inflorescence and daily consumed.

Ailment: Boils.

Plant part used: Leaf sheath.

Preparation and administration: A poultice prepared using four leaves and little water is applied to the affected part.

Location: Fatorpa, Quepem.

***Moringa oleifera* Lam.**

Plant description: Small, soft, and delicate tree, stem glabrous. Leaves usually 3-pinnate, broadly obovate, and rounded at tips. Flowers white, honey-scented; fruit capsule; seeds many, trigonous.

Family: Moringaceae.

Local Name: Mashing.

English Name: Drumstick.

Ailment: Promotes flow of urine.

Plant part used: Root.

Preparation and administration: Juice obtained by adding two grams of fresh roots, using little water, is consumed twice a day for two weeks.

Location: Quitol, Quepem.

***Syzygium caryophylltum* (L.) Alston**

Plant description: Tree, grows up to 6m tall; leaves simple, opposite, and intramarginal nerve; fruit berry, black globose with calyx lobes, glabrous.

Family: Myrtaceae.

Local Name: Bedsa.

English Name: South Indian Plum.

Ailment: Diabetes mellitus.

Plant part used: Seed.

Preparation and administration: A decoction using two teaspoons of dry seed powder in half a glass of water is consumed orally.

Ailment: Skin allergy.

Plant part used: Leaf.

Preparation and administration: Paste is obtained using seven leaves and little water applied to an affected part.

Location: Avedem, Quepem.

***Carissa carandas* L.**

Plant description: Shrub; stem with white latex and the branches with sharp spines; flowers white, small; fruit is a berry, formed in clusters of 3-10.

Family: Apocynaceae.

Local Name: Karvanda.

English Name: Karonda.

Ailment: Herpes.

Plant part used: Leaf.

Preparation and administration: Paste prepared using six leaves, with little water, is gently applied to the affected part.

Location: Ambaulim, Quepem.

***Bauhina racemosa* Lam.**

Plant description: Deciduous tree, grows up to 10 m high; leaves small, bilobed; fruit curved, thick, and woody.

Family: Fabaceae.

Local Name: Apto.

English Name: Bidi leaf tree.

Ailment: Fever.

Plant part used: Leaf.

Preparation and administration: Decoction prepared using 6-7 leaves in half a glass of water is consumed orally.

Ailment: Mouth ulcer.

Plant part used: Bark.

Preparation and administration: Decoction prepared using two grams of bark in half a glass of water is consumed orally twice daily for a week.

Location: Odar, Quepem.

***Mimosops elengii* L.**

Plant description: Evergreen tree, grows to a height of 16m; leaves dark green, glossy, oval-shaped, 5-14cm long; flowers hairy, scented; fruit orange, oval.

Family: Sapotaceae.

Local Name: Oval.

English Name: Bullet-wood tree.

Ailment: Childbirth delivery.

Plant part used: Fruit.

Preparation and administration: Ripe fruit is powdered, mixed with water, and consumed orally.

Location: Morpila, Quepem.

***Lantana camara* L.**

Plant description: A perennial, erect shrub grows up to 6m; leaves broadly ovate, opposite, simple, and strong odour when crushed; flowers small, tubular-shaped.

Family: Verbenaceae.

Local Name: Ghaneri.

English Name: Spanish flag.

Ailment: Chicken pox.

Plant part used: Leaf.

Preparation and administration: Paste obtained using 15 leaves in little water is gently applied to the affected part.

Location: Molcopora, Quepem.

***Eclipta prostrate* L.**

Plant description: Annual, branched, herbaceous plant; flowers white and solitary.

Family: Asteraceae.

Local Name: Meko.

English Name: False Daisy.

Ailment: Kidney stone.

Plant part used: Whole plant.

Preparation and administration: Juice obtained from 5-7 plants, using little water, is consumed orally twice daily.

Location: Barcem, Quepem.

***Lawsonia inermis* L.**

Plant description: A branched herb; numerous flowers, white, fragrant; seeds pyramidal.

Family: Lythraceae.

Local Name: Methi.

English Name: Henna tree.

Ailment: Ulcer.

Plant part used: Bark.

Preparation and administration: Decoction prepared using 10-13 leaves and half a teaspoon of salt in two glasses of water is used for gargling. (Do not swallow the solution).

Location: Balli, Quepem.

***Allium cepa* L.**

Plant description: Herb with underground bulb; leaves simple with parallel venation; lanceolate.

Family: Amaryllidaceae.

Local Name: Kano.

English Name: Onion.

Ailment: Blood pressure.

Plant part used: Bulb.

Preparation and administration: Paste obtained from three onion bulbs using little water is applied on the head.

Location: Tiloi, Quepem.

***Zingiber officinale* Roscoe**

Plant description: Perennial rhizomatous herbs; leaves simple, sheathed; flowers yellow, racemes.

Family: Zingiberaceae.

Local Name: Aale.

English Name: Zinger.

Ailment: Cough.

Plant part used: Rhizome.

Preparation and administration: Decoction is prepared using two inches of ginger, and half teaspoon of black pepper (*Piper nigrum*) in one glass of water and is consumed twice daily.

Location: Assolda, Quepem.

***Syzygium aromaticum* (L.) Merrill & LM Perry**

Plant description: An evergreen tree; flowers numerous in terminal clusters; flower buds pale coloured developing into bright red.

Family: Myrtaceae.

Local Name: Lavang.

English Name: Cloves.

Ailment: Toothache.

Plant part used: Bud.

Preparation and administration: Paste prepared using five buds are applied to the affected part.

Location: Corla, Quepem.

RESULTS AND DISCUSSION

The objective of the present study was to document the data about the medicinal uses of different plant species from Quepem taluka.

During the present study period, 126 plant species having medicinal uses and belonging to 51 families and 115 genera have been recorded. A total of medicinal uses related to various diseases/ ailments, viz., cancer, heart disease, paralysis, cough etc., have been recorded. The study revealed either the whole plant or different parts of the plant, like inflorescence, latex, bulb, tubers, seeds, rhizomes, flower, leaf, stem, bark, roots, and fruits, are used to prepare herbal remedies by the local practitioners (**Fig. 1**). Herbal medicines prescribed by tribal people are either made from a single plant or used from mixtures. Herbal medicines are mostly consumed in the form of decoction, paste, juice, and poultice. (**Fig. 2**). Family-wise distribution of medicinal plants is illustrated in **Fig 3**. According to the survey, most of the medicinal plants used by the locals belong to the family Apocynaceae, Fabaceae, and Moraceae.

The data collected shows the majority of the herbal remedies are taken orally. In most cases, fresh plant parts were used to prepare the medicine. The people of the study area strongly believe in the efficacy and success of herbal medicines. The result of the present study provides evidence that medicinal plants continue to play a significant role in the healthcare system of these tribal people.

CONCLUSION

This study provides ethnobotanical data on the medicinal plants used by the tribal people of Quepem taluka in Goa to cure various diseases. However, this study is conducted to promote the practical use of botanicals. Further detailed exploration and collection of ethnobotanical information, screening, and chemical analyses for medical properties will provide a cost-effective and reliable source of medicine for the welfare of humanity.

GLOSSARY

Paste is a thick, soft, moist substance typically produced by mixing dry ingredients with a liquid.

Poultice is a soft, usually heated and sometimes medicated mass spread on a cloth and applied to sores or other lesions to supply moist warmth, relieve pain, or act as a counterirritant or antiseptic.

Diabetes is a chronic, metabolic disease characterized by elevated levels of blood glucose (or blood sugar), which leads over time to serious damage to the heart, blood vessels, eyes, kidneys, and nerves.

Boil is a deep folliculitis, an infection of the hair follicle.

Sore is a mild pain

Jaundice is a yellowish pigmentation of the skin due to the deposition of bile pigments in the blood.

Ringworm is a common contagious disease produced by fungi that basically affect skin, hair, and nails.

Diarrhea is defined as the passage of three or more loose or liquid stools per day.

Kidney stone is a solid crystal aggregation formed in the kidneys from dietary minerals in the urine.

Asthma is the air passages in the lungs become narrow due to inflammation and tightening of the muscles around the small airways.

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