

Traditional uses of some indigenous plants as medicine by Sundarbans' people in West Bengal

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Abstract:

Out of 45,000 plant species in India, more than 4,000 are known to be herbs. In Sundarbans, this number is more than a hundred. Trees, herbs and shrubs have been used for various ailments. In most cases, the long-term adverse reactions have forced the entire world today to look for ways to survive by searching for the herbal plants scattered in the forests and the knowledge accumulated over centuries of experience through application. In search of even though there is an advanced medical system available today, the people of Sundarbans have not lost their faith in the traditional herbs that have been passed down from generation to generation. People here lead their lives through hard struggles. They get benefits by using raw plant parts traditionally during illness. In many cases, plants are used as traditional medicine and are more effective than modern medicine, according to the local healer of Sundarbans. In this chapter, the scientific and vernacular names of some of the medicinal plants of Sundarbans, plants part, traditional uses & method of uses in particular disease for curing their daily health problems are elaborately described.

Introduction:

Herbal medicine systems that have evolved over centuries of accumulated experience and it continue to evolve today have their own perspective (Ghosh, 1940; Banerjee, 1964; Banerjee et al., 1989; Sanyal et al., 1994; Acharya et al., 2020, 2021, 2022; Das, 2022; Das, 2023). However, these traditional medicines have no direct uses in our ancient scriptures (Banerjee et al., 2014; Bose, 2018; Bhattacharjee, 2021; Basu et al., 2022; Bhowmik et al., 2022; Darro & Khan, 2023). Atharvaveda is one of the shining examples of this context. World famous researcher Kenneth Zysk says that the concept of folk medicine evolved during the Indo-European civilization. This indigenous concept is a matter of pride for the entire Indian population at that time. According to McDonnell, Winternitz, Weber, etc., this Atharva Veda was composed around 3000 to 2000 BC. We will come up with the context of today's traditional herbal medicine in the lower Gangetic plains of West Bengal, where tribal peoples live, namely- Bhumij, Bedia, Munda, Orano, Mahali, Lohar, Santal and Chakma also (Parsard

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et al., 1987; Kenneth, 1993; Naskar, 1998; Naskar, 2000; Jana, 2020; Das et al., 2022; De & Sharma, 2023). Needless to say, all these people who belong to the tribal communities of the Sundarbans delta region live their lives with almost the same ritual and culture and also laid down their own traditional medical practices (Choudhuri & Chaudhury, 1994; Chaudhary, 2016; Erfani, 2021; Ghosh et al., 2022; De et al., 2023; Dhakar & Tare, 2023). People say 'Sundarban' has two concise terms 'forest' and 'basat'. The Sundarbans is the world's largest delta region at the Ganga-Brahmaputra estuary. India and present-day Bangladesh together have an area of 25,500 square km. This region is a collection of small isolated islands surrounded by salt water. Its water, soil, forest, environment, weather, etc. are all different in nature, taste, and character. Sundarban was named because of the forest of Sundari trees. Many people say that this region is full of beautiful deep forests called Sundarbans. But there is not much of an abundance of trees in Sundarbans. *Heritiera* (*Heritiera fomes* Buch-Hum) is only one species in this forest. In 1989, it was declared as 'Sundarban Biosphere Reserve'. Ecologists call mangrove forest. Here is a special type of ecosystem (Ecology). The annual average rainfall here is 1700-1900 ml and tidal water 04.5 m - 05.4 m every 6 hours, which is fluctuated. Of the part of Sundarbans that lies within India, 48 islands have protected forest areas and 54 islands are inhabited. Currently, the population here is about 45 lakhs. Ayurveda, Unani (Hechemy) and Siddha (South Indian system of medicine) were India's three main medical systems from ancient times until the Portuguese, Dutch and English arrived in India. All these medical methods were greatly developed (Madhu & Sarkar, 2015; Maiti et al., 2010, 2013; Mandal, 2022; Sanyal, 022; Kar et al., 2022; Jyotirmayee et al., 2023). All the herbs that have been tested on the hard stone for a long time and used to prevent and cure diseases are almost all proven correct by modern research (Pyne & Santra, 2017; Pal et al., 2022; Raha et al., 2022; Saha et al., 2022; Pimple et al., 2023; Sarkar, 2017; Sarkar et al., 2020, 2021, 2022, 2023). The Sundarbans region is a paradise for this herb. Not only that, but it is also the lungs of West Bengal and India. This unique, beautiful beach has been developed along the coast of the Bay of Bengal along the banks of the Ganges, Padma, Brahmaputra and their numerous tributaries and tributaries divided into many streams in West Bengal and the southern part of Bangladesh. Here is the ultimate monopoly of salt water in the vast aquifer. The ecosystem here is always in the constant movement of tides. A special type of mangrove plant has been born in this salty water. The word mangrove is derived from the Portuguese word 'mangu' and the English word 'grove.' Our discussion will take place in the natural environment of this Sundarbans region, the traditional aspect of herbal treatment based on its unique plantation.

Arjun (*Terminalia arjuna* Bedd, family Combretaceae)

Common Features: Large tree, usually bark, is shed twice a year.

Active ingredients: tannins and tannic acid.

Parts used: Bark and leaves.

Medicinal/Traditional Uses :

1. To relieve heart palpitations and heart ailments.
2. Used for relief of scabies, scabies, bone fractures, diarrhoea.
3. To relieve hoof ulcers in cattle.

Method of use:

- 1) Daily, 2-5 grams of bark powder is used to remove chest palpitations and heart disease.
- 2) Bark powder taken with warm milk relieves the pain of injury.
- 3) Paste of raw bark is applied to the rash, 'mecheta'.
- 4) Bark juice relief from 'amasha'
- 5) Bark poultice to remove from hoof wounds of animals.
- 6) Raw bark is used for jabs (plaster) on broken bones.

Anantamul (Common name *Hemidesmus indicus* R.Br., Family- Asclepiadaceae)

Common features: It is long-lived and creeping plant. It has white latex.

Active ingredients: Active ingredients are sterols and glycosides.

Parts used: Root, pulp.

Medicinal/ traditional use:

1. It has blood purifying activity.
2. Used to normalize the paralyzed limbs.
3. To relieve intestinal disorders, to remove facial acne and 'mecheta'.
4. Young twigs and roots increase the milk of cows and goats.

Method of use:

In each case, it is applied to the ointment for external uses or given to eat for internal uses.

Antamul (*Tylophora indica* (Burm.f.) Merrill. Belongs to the family Asclepiadaceae)

Common features: This plant is a long-lived vine. The creeper has white pulp.

Active Ingredients: Tylocorin and Tylocorylin.

Parts used: Root, leaves

Medicinal/Traditional Uses:

1. Used to reduce fevers, colds, asthma
2. Relieve dysentery in cattle diarrhoea and flatulence.

Methods of use :

- 1) Smoke of dried leaves reduces asthma.
- 2) Decoction of leaves (one part leaves boiled in 10 parts water) 10-12 ml. Used twice a day for colds and fevers.
- 3) Root decoction is used for white and bloody dysentery.
- 4) Chewing raw leaves in the morning relieves asthma.

- 5) 20-25 grams of root pulp is used twice a day to cure cattle dysentery and flatulence due to the emetic properties of the roots.

Aparajita (*Clitoria ternatea* L., family Fabaceae)

Common features: Plant is a long-lived creeping plant. Blue, pink and white colored flowers can be seen here and there.

Active ingredients: resinous substances and tannins.

Parts used: roots, bark, leaves, flowers.

Medicinal/ Traditional Uses: Relief from Whooping Cough/Goitre/Swelling of Ears/ Child Cough. It also relieves swelling of cattle's throats.

Method of use:

- 1) In whooping cough, 4-5 ml of root juice is taken once a day with cold milk.
- 2) To treat the Goitre, warm the roots (white flowering plant) with ghee is prescribed to eat with rice every day.
- 3) Applying the leaves' juice warmed with salt is claimed to remove swelling around the ears.
- 4) Flower juice mixed with mother's milk and honey is used to cure children's cough.

Ashwagandha (*Withania somnifera*, Dunal belongs to the family Solanaceae)

Common features: It usually looks like a small plant.

Active ingredients: Multiple alkaloids.

Parts used: Root, leaves

Medicinal/Traditional Uses:

1. To increase male fertility.
2. To remove adult weakness.
3. To relieve asthma in children, induce sleep, and bring healthy sleep.
4. Remove the shoulder sore for drawing bull.

Method of use :

- 1) Root powder with 5-7 grams of warm milk increases male fertility.
- 2) Elderly people are advised to take three grams of root powder once a day to remove senile weakness.
- 3) In children's asthma, the roots are boiled in mustard oil and massaged on the chest.
- 4) Root decoction is said to induce sleep.
- 5) The juice of the leaves of this plant is used to relieve the shoulder pains caused by drawing oxen.
- 6) To remove the gynaecological obstruction, the root paste is warmed with ghee and is prescribed orally after menstrual cycle.

Akanda (*Calotropis gigantea* R. Br., Family: Asclepiadaceae)

Common features: A shrub with purple and white flowers. Latex is present. Plants with white flowers are relatively rare.

Active Ingredients: Akundrin and Calotropin.

Parts Used: Roots, leaves, bark, seeds.

Medicinal/Traditional Uses:

1. Relieves rheumatism/syphilis/relief of lice/spondylitis/toothache and removes lice (parasites),
2. Relieves to cattle from lice and hooves.

Method of use:

- 1) To relieve the pain of rheumatism, the raw leaves are said to be heated and given as a decoction.
- 2) Root powder is given twice a week in quantity of one gram to cure syphilis.
- 3) 'Mecheta' is removed to be mixed with raw turmeric.
- 4) Powder is used to kill head lice.
- 5) A pillow of seed cotton heated in the sun is used to cure spondylitis.
- 6) It is applied as toothache pills.
- 7) Dried leaf dust is used to remove lice (parasites), lice and mites

Apang (*Achyranthes aspera* L.), Family- Amaranthaceae

General features: Commonly known as Apang. It is small in size.

Active ingredient: Emitin

Parts used: Root, stem, leaves.

Medicinal/Traditional Uses : Used to remove water retention from the body/menstrual fits is removed/remove dental caries/ remove jaundice etc. and to stop bleeding and also make it easy to deliver a child of cattle.

Methods of use:

- 1) Drinking 10-12 ml of boiled water of tree bark twice a day removes sokha (water accumulation in the body).
- 2) Root paste prevents menstrual cramps.
- 3) To remove the pains of insect biting are prescribed to chew the root.
- 4) Jaundice is cured if a garland of tree trunk is put on around the neck.
- 5) The roots are tied to the leg of the pregnant woman for smooth delivery.
- 6) The juice of this plant is used to stop bleeding from broken horns of cattle.

Asamlata/Baranlata/Ayublata (*Mikania cordata* (Burm.f.) Robinson, Family- Asteraceae)

General features: It is a long-lived creeping plant.

Active ingredients: Vitamin A, B and C of leaves.

Medicinal / Traditional Uses: It relieves gastric ulcers in freshly cut wounds and even after leg amputations in cattle.

Method of use:

- 1) 8-10 ml of raw leaf juice is said to be taken twice a day for stomach ulcers.
- 2) Juice of raw leaves applied to freshly cut wounds stops bleeding and acts as an antiseptic.
- 3) 10-12 ml of raw leaf juice is prescribed for gas and antacids.
- 4) If the leg of a cow/buffalo is injured by the plough blade during cultivation, applying the juice of this leaf is beneficial.

Amrul (*Oxalis corniculata* L. belongs to the family Oxalidaceae)

General features: it is a long-lived herb. Yellow-colored flowers can be seen on this plant.

Active Ingredients: Vitamin C and Carotene.

Part used: the whole tree.

Medicinal/Traditional Uses: Used to remove blood dysentery/relieve fever and cold/relieve pain from insect bites/remove opium and alcohol intoxication/relieve heartburn activity.

Methods of use :

- 1) 12-14 ml raw leaf juice is given with salt in blood dysentery.
- 2) This juice is taken with black pepper to get rid of colds, fever and influenza.
- 3) The application of leaf juice to stings of poisonous insects relieves pain.
- 4) The juice of raw leaves helps to remove the intoxication of opium and alcohol.
- 5) Eating the juice of the leaves with beet salt relieves heartburn.

Alaraka/lata begun(Vine Eggplant): (*Solanum trilobatum* L, family- Solanaceae)

General features: this plant is also a long-lived creeper. Its flower color is purple.

Active ingredient: Solasodin in leaves and fruit.

Parts used : Roots, leaves, fruits.

Medicinal/Traditional Uses: Cure coughs, colds, fevers, hay fever, and skin diseases.

Method of use:

- 1) Leaf and fruit decoction of 8-10 ml of leaf and fruits once a day is used for cough and cold fever.
- 2) If the leaves and roots are boiled in juice and the oil is applied to the 'haja', the 'haja' is cured.
- 3) To cure the vaginal infection and inflectional disease of the outer genital part, the leaf paste and fruit paste are prescribed externally with mustard oil.

Ayapan (*Eupatorium triplinerve* L., belonging to the family Asteraceae)

General features: It is a climbing plant and a wild plant.

Active Ingredients: Ayapnin and Iodine.

Part Used: The whole part

Medicinal/Traditional Uses: This plant is used to remove blood vomiting/ cure the, heal stomach ulcers/relieve physical weakness and cure nervous system weakness.

Method of use:

- 1) Raw leaf juice 10 ml to cure blood vomiting and stomach ulcers. It is prescribed to be eaten twice or thrice a days in a week.
- 2) Leaf juice is said to be taken with sugar to remove physical weakness.
- 3) This plant is used to remove nervous system weakness.

Ulat combal (*Ambroma augusta* L., family Sterculiaceae)

General features: It is a small tree. The flower color is purple.

Active ingredient: linoleic acid as alkaloids.

Parts used: Root, bark and leaves

Medicinal/Traditional Uses: Used to relieve boils/urinary irritation.

Method of use:

- 1) The juice of raw leaves is applied to the boils for better results.
- 2) Drinking water soaked in leaf stalk to relieve a burning sensation in urine.

Ulat chandal (*Gloriosa superba* L. belonging to Liliaceae family)

General features: It is a creeping plant. The front side of the leaves of this tree is attractive. The flowers of this plant are bright fire colored.

Active ingredient: Colchicine is present in roots and seeds.

Medicinal/Traditional Uses: Roots are used to reduce rheumatic swelling due to their acute toxicity.

Method of use:

- 1) Paste of root is applied to tooth swelling.
- 2) Root powder is used as its roots are highly poisonous.

Ora (*Sonneratia griftithi* Kar., family- Lythraceae)

General features: The tree is large in size. Its flowers look like jam flowers.

Active ingredient: Archinine.

Parts used : bark, leaves, fruit.

Medicinal/Traditional Uses : Relieving flatulence in cattle.

Method of uses :

- 1) Fruit pulp is used to relieve flatulence in cattle.

Ora (White) (*Sonneratia alba* Sim) family; Lythraceae

General features: It is a medium-sized tree. Its flowers are generally similar to Jamrul flowers.

Active ingredient: Tannin.

Parts used: Bark, fruit.

Folk/Traditional Uses: To relieve from cold cough and indigestion

Method of use:

- 1) The unripe fruit is prescribed for common cold and cough.
- 2) The ripped fruit is used as raw or cooked to cure indigestion.
- 3) In the case of indigestion caused by consuming excess milk from the calf, it is reduced by eating this fruit.

Kakmachi: (*Solanum nigrum*. It belongs to the Solanaceae family)

General features: the plant looks like a small pepper plant.

Active Ingredients: Solanine, Saponin.

Parts Used: Time plant, fruit.

Medicinal/Traditional Uses: Treatment of varicose veins/relief of itching and allergies/relief of gout/fit in children.

Method of use:

- 1) The juice of raw leaves mixed with raw turmeric and applied on the skin can prevent itching and allergies in hot weather.
- 2) A poultice of the leaves is used to cure rheumatism.
- 3) There is a practice of giving the juice of the ripe fruit and powder of the root to prevent "Tadaka" (Fit in children).

Kankra (*Bruguiera gymnorrhiza* family-Rhizophoraceae)

General features: It is not very big in shape.

Active ingredients: Bark contains 14-19 percent tannin.

Parts used bark, fruit.

Medicinal/Traditional uses: Used to cure ringworm/relief of ingrown toenails/ prevent cattle hoofs.

Method of use:

- 1) Bark poultice is used to treat boils.
- 2) Leaf and bark paste is used to treat eczema, scabies ringworm and another fungal disease of skin.
- 3) Cattle hooves (a type of sore) should be washed off the bark of this plant with boiled water.

Kalabine (*Avicennia alba* Blume., Kalabine is a tree of Avicenniaceae family.

General features: this plant is medium in shape

Used parts: bark

Medicinal/ Traditional uses: Used to treat birth control, ulcers, skin conditions, and even cancer.

Method of use :

- 1) The leaf extract is used orally to treat stomach ulcers.

2)The bark paste is used externally to treat any type of skin infection.

Keora (*Sonneratia apetala* Buch. family Lythraceae.).

This tall tree and fruit are sour in taste.

Active ingredient: Tannic acid.

Parts used: Leaves and fruits.

Physiological/Interactive Uses : To cure digestive or gastro-intestinal problems.

Method of use:

- 1) Fruit is used to treat digestive problems like acidity, stomach-ache.
- 2) Raw fruit extract is used to treat diarrhoea and loose motion.

Kesraj: (*Eclipta prostrata* L., Asteraceae family)

General features: It is a creeping plant. Its flower color is white.

Active ingredient: Ecliptin.

Parts Used: Roots, whole plant, leaves.

Folk/Traditional Uses: Used to blacken hair promotes hair growth/relieve headache/stop bleeding.

Method of use:

- 1) Regular use of Kesraj leaf juice results in black hair.
- 2) Kesraj leaf juice promotes the hair growth.
- 3) The headache is relieved by twisting some Kesraj leaves to make juice and applying on head.
- 4) The leaves are used to stop bleeding and healing the cuts and wounds of cattle .

Keya (Common name *Pandanus odoratissimus* L., Pandanaceae- family,)

General feature: The prop root is visible. The fruit of this tree looks like a pineapple. It is medium-sized plant.

Active ingredients: benzyl benzoate, benzyl and salicylate.

Parts used: Roots, leaves, flowers and fruits.

Medicinal/ Traditional use: It is to treat cataracts in cattle in water instead of camphor as a perfume.

Method of use:

- 1) The flower extract is used as a perfume.
- 2) Use of these flowers instead of camphor in drinking water gives a different aroma.
- 3) The juice of the roots is used to treat cataracts in cattle.

Kripa (*Lumnitzera racemosa* Willd., Combretaceae- family)

General features: It is medium in height.

Active ingredient: 11% tannin.

Part Used : Bark.

Medicinal/Traditional Uses : Use in Naranga (Herpes) and itching.

Method of use:

- 1) Bark paste is used to cure Naranga (Herpes).
- 2) Bark sheath is applied to cure the itching.

Kunch (*Abrus precatorius*, Fabaceae family)

General features: It is a long-lived creeping plant. The seeds of this plant are poisonous. The seeds are usually red, white and grey in color.

Active ingredients: Abrin, Arabin, Glucoside.

Parts used: Root, leaves and seeds.

Medicinal/Traditional Uses : Reasons: Stop hair loss/prevent pregnancy/damage poultry and cattle.

Method of use :

- 1) Mixing the seed powder with coconut oil and applying it to the head solves the problem of hair loss.
- 2) To prevent unwanted pregnancy, the warmed milk-soaked seed husk is orally prescribed with ripe banana.
- 3) The seeds are poisonous to poultry and cattle. Again, if these seeds are soaked in milk for 12 hours, it is believed that the toxicity of the seeds is destroyed.

Kumarilata/Ramdatton (*Smilax zeylanica* R. Br., family -Smilacaceae.)

General features: Common name This long-lived creeper is known as the leaves of the tree, which play the role of attraction. It belongs to the

The active ingredient is tannin.

Parts used : Root, leaves.

Medicinal/Traditional Use: Reason Prevents tooth decay.

Method of use:

- 1) On the Dasahara day of Durga Puja, if this tree is used as a toothpick, it prevents tooth decay.

Kukurchita\kharajora: (*Litsea glutinosa* Roxb., Lauraceae -family)

General features: This is a medium-sized tree. Its leaves have a pungent smell, and green flowers bloom on it.

Active Ingredient: Neurotitanin of the plant.

Parts used: leaves, stems, and leaves.

Medicinal/Traditional Uses: Used to repel mosquitoes, pain killer

Method of use:

- 1) The powder of the bark of this plant is used to repel mosquitoes.
- 2) Water soaked leaves are said to be consumed in the morning to reduce the body aches.

- 3) Plaster of the bark of this tree is given to fix broken bones.

Gandhabhaduli (*Paederia foetida*, Rubiaceae family)

General features: It is a long-lived creeper. Its leaves are smelly.

Active Ingredients: Odorless volatile oil, alkaloids.

Parts used : Root, leaves.

Medicinal/Traditional Uses: Used to increase body strength/relieve rheumatic pain

Method of use:

- 1) Raw leaf juice helps to increase body strength.
- 2) Its leaves are washed in clean water to make juice and regular use relieves the pain of rheumatism.
- 3) Massaging paver kai is known to relieve arthritis swelling.

Jele goran: (*Ceriops decandra* Dingo belongs to the family Rhizophoraceae.)

General features: This plant has respiratory roots. Medium height.

Active ingredients: 30-40% tannins.

Used parts: bark.

Medicinal/Traditional Uses :

1. The bark extract is orally prescribed to stop excessive bleeding after delivery
2. The bark paste is externally used to cure skin diseases like herpes, ringworm etc.

Methods of uses:

- 1) A decoction of its bark is used to stop excessive bleeding after childbirth.
- 2) Applying the decoction of the bark of this plant as a poultice to skin diseases such as ringworm, ringworm etc. will bring benefits within a few days.

Choto Gimashak (*Mollugo pentaphylla* Linn. belongs to Molluginaceae family)

General features: White flowered herb.

Active ingredient: bitter ingredient.

Parts Used : Whole plant.

Medicinal/Traditional Uses: Used to relieve fever.

How to use: The plant is washed well, and the decoction is prepared and prescribed for fever.

Gneoya (*Excoecaria agallocha*, belongs to Euphorbiaceae family)

General features: The tree is not very large in size. There is grass in the tree.

Active ingredient: 10% tannin.

Parts used: Bark, leaves, bark.

Medicinal/Traditional Uses: Used to cure the wounds of cattle hooves in the treatment of epileptic disease.

Method of use :

- 1) The leaves cure epilepsy.

- 2) A poultice applied to sores on the shoulders and the hoofs of cattle, and which dries quickly.

Gullancha (*Tinospora cordifolia* (Willd) Miers ex Hook belonging to the family Menispermaceae)

General features: long-lived vine.

Active ingredients: basic ingredients are

parts used: The whole plant.

Medicinal/Traditional Uses:

1. Stem and bark extract is prescribed for diabetes.
2. Increasing physical strength
3. Prevention of cattle disease.

How to use:

- 1) Overnight soaked bark water is prescribed orally on an empty stomach to cure diabetes.
- 2) This plant is used to remove physical weakness and increase strength.
- 3) The juice of this plant and raw turmeric are mixed together and applied to the area to relieve itching.
- 4) To treat the scabies of cattle, the tree bark (with jaggery) is given to eat and prescribed the bark paste is externally to the affected area. The disease is cured within a short time.

Golpata (*Nypa fruticans* Wurm, family- Arecaceae)

General features: leaves look like coconut leaves.

Active ingredients: Raw fruit contains 5 percent protein.

Parts used: leaves, fruits.

Medicinal/Traditional Uses: Treatment of intestinal ulcers/ eye diseases.

Methods of use:

- 1) Burn the young leaves of this plant and apply the ash on the intestinal tract to heal the wound.
- 2) The juice of this fruit is used for eye diseases.

Conclusion:

Over the centuries, each medical system has developed and accumulated through experience and has its own perspective. That perspective and herbal research have become more and more necessary in today's globalization day. There is a need to eliminate effective aspects of old medical systems and incorporate modern thinking to develop a comprehensive and robust health system for all. Modern medical science has not really discovered any curative medicine for diseases such as weight loss, immune deficiency, mental fatigue, memory enhancement etc. due to viral diseases. Nowadays, the demand for herbal plants is increasing in Western countries as they are much safer than chemical medicines and have no side effects. And along with that demand, people still have faith in the traditional treatment methods that have been used for generation after generation. The people of a certain region, the people living in the same geographical area, rely on that belief and carry on their livelihood. This mundane

traditional treatment has become their culture. Despite being one of the eight richest countries in the world, our country, India, has faith in this rural folk medicine system. So, the time has come to preserve and properly care for all these trees, shrubs and herbs in the Sundarbans delta.

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