



Research Article

A STUDY ON THE PERIPHERAL ATMOSPHERE SUPPORTING LOTUS FLOWER OF INDIA'S BACKWATER- KERALA

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ABSTRACT

Lotus flowers from Kerala's Vembanad Lake have been extracted from specific core water locations along with water samples and has been analysed in order to develop dried Lotus Tea as in Bags with name as "Indian Pankaj" that will help in health-related issues as being a natural treatment for disorders like insomnia, high cholesterol, diabetes, anxiety, stress etc., being a part of daily routine. It is found that the water supporting these lotus petals from Vembanad lake is having traces of calcium, magnesium, chloride, sulphate, silicate, sodium, bicarbonate and potassium in good content, rich in antioxidants along with essential nutrients to support white blood cells, the fluid mechanism, the immune transporter which ensures that the atmosphere of lake is full of essential minerals in order to support this lotus tea from Kerala, Backwaters. Too, because of the Vitamin D enrichment making these water lilies exceptional as they used to bloom in the first half of morning and used to shut down slowly when approaching to evening i.e., it functions according to the sunrise with sunlight. Observed the same when brought to room temperature for testing and trials. Pictures are enclosed in the paper. As we know that sunlight in its own is a therapy for so many diseases. Drinking Vitamin D enriched water is eligible to remove deficiencies of bones and blood via purification. Therefore, in this study, it is suggested to drink this beverage containing lotus extracts that will be able to develop a strong metabolism against certain infections and disorders in order to maintain a healthy medicine free living. Lastly, but not at least, would like to add up via saying- Let food be your first medicine and kitchen be your pharmacy. That's the power of Lotus Petals.

INTRODUCTION

Lotus is known as *Padma* in Sanskrit and *Pankaj* in Hindi. It's the national flower of India. Indian lotus is one of the extant species of aquatic plant in the family "Nelumbonaceae". It is too termed as water lily. Lotus plants are adapted to grow in the flood plains of moving rivers and delta areas. Stands of lotus drop hundreds of seeds every year to the bottom of the pond. While some sprout immediately, and most are eaten by wild life, the remaining seeds can remain

dormant for an extensive period of time as the pond silts in and dries out. During flood, sediments containing these seeds are broken open and the dormant seeds rehydrate and begin a new lotus colony. Under favourable conditions, the seeds of this aquatic perennial may remain viable for many years, with the oldest recorded lotus germination being from seeds 1,300 years old recovered from a dry lake bed in north east of China. Therefore, the Chinese regard the plant as a symbol of longevity.

In India, it has a very wide native distribution, ranging from northern and central India with altitudes up to 1400 m to 4600ft in the Southern Himalayas. The roots of lotus are planted in the soil of the pond or river bottom, while the leaves float on the water's surface or are held above it. The flowers are usually found on thick stems rising several centimetres above the leaves. Researchers report that the lotus has the natural ability to control the temperature of its flowers

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within a narrow range just as humans and other warm-blooded animals^[1]. Lotus seeds can remain viable after long periods of dormancy. In 1994, a seed from a sacred lotus, dated at roughly 1300 years old +/- 270 years was successfully germinated.

In Egyptian times, the lotus flower was very important in their religion. It was meant to be the symbol of creation and re birth, the symbol of sun because at night fall it closes and goes beneath the water and at dawn it climbs up above the water and re opens. It grows in the deep mud far away from the sun. Sooner or later, it reaches the light becoming the most beautiful flower ever. It is regarded as the symbol of purity, enlightenment, self-generation and rebirth in different cultures.

Health Benefits

Lotus contains chemicals that decrease swelling, kill cancer cells and bacteria, reduce blood sugar, help breakdown the fat and protect the heart and blood vessels. Too, seems to protect the skin, brain and liver^[2]. It is too beneficial in blood circulation and stress management. Its roots help to manage digestion related problems like dysentery and diarrhoea due to its *Kashaya* (astringent) property. It helps to control excessive loss of water.

Synonyms of Lotus

It has many names such as *Nelumbo Nucifera*, *Padma*, *Aravinda*, *Abja*, *Sitopala*, *Kalhara*, *Pankaja*, *Podum*, *Padma Phool*, *Salaphool*, *Kanwal*, *Kamal*, *Naidile*, *Tavare*, *Tamara*, *Tavaregedd*, *Venthamara*, *Chenthamara*, *Komala*, *Pamposh*, *Tamarai*, *Thamaraipoo*, *Aravindan*, *Paduman*, *Kamalam*, *Sarojam*, *Tamarapuvow* And *Kaluva*.

Lotus Parts

Lotus roots cannot be eaten raw as it is astringent and bitter in taste. This is due to the presence of tannins. It can taste best in cooked form as heating reduces its bitterness. They can even steam or boiled or even freeze & used for cooking without defrosting. It is a good practise to cut them in slices and then freeze them in the refrigerator. It is a form of tuber and has a dense, crunchy and a starchy texture, used in soups and stir-fried dishes. All the parts of the Lotus plant are used in Ayurvedic medicines. It acts as a tonic for the heart, skin and liver. It balances an aggravated *Pitta* and also reduces the bleeding disorders. This is due to its *Sita* (cold) and *Kashaya* (astringent) properties. There are two types of it- *Kamal* and *Kumud*. While *Kamal* has pink or reddish pink petals and is known as '*Rakta-kamala*', *Kumud* has white petals and is known as '*Pundarika*' or '*Sveta Kamala*'. Lotus root extract is rich in antioxidants due to which it protects the cells against oxidative damage and contributes towards its hepatoprotective

potential. It too has diuretic and astringent property which may be useful in managing obesity. It is rich in alkaloids which are useful in managing irregular heartbeat, enhance strength and sexual performance. It may also be useful in managing diabetes, infertility and infections of the urinary passage. It may be beneficial in weight loss too. This is because lotus leaves, rhizome and seeds, all possess anti- obesity property^[3]. It inhibits the activity of certain digestive enzymes, reduces the absorption of lipids and carbohydrates, increases lipid metabolism and reduces energy expenditure.

Lotus Seeds & Allergy

Lotus seeds do not cause allergy. Studies suggest that it is use to manage allergic reactions due to the presence of a chemical called Kaempferol. It inhibits immunoglobulin E mediated allergic reactions. They are edible seeds and too known as Lotus Nuts or Makhana (when dried). But, if one is having some gastrointestinal problems like constipation, it can worsen the problem. This is due to its *Kashaya* (astringent) and *Garhi* (absorbent) properties. Lotus seeds can be taken as popcorn (makhane), or as a powder in making bread. They consist of carbohydrates, protein, essential minerals like calcium, magnesium and potassium which makes it beneficial for heart and liver health. They contain certain constituents which prevent cell damage, strengthens the immune system and fights against bacterial and viral infections. It too contributes in acid reflux or indigestion, manages piles and heals inflammation.

Lotus Leaves & Cholesterol

Lotus leaves help lower high cholesterol due to the presence of certain constituents (flavonoids). These constituents help in reducing bad cholesterol (LDL low-density lipoprotein), total cholesterol and triglycerides in the body and improves the level of good cholesterol (HDL high-density lipoprotein), thereby managing cholesterol levels^[4]. High cholesterol is due to an imbalance of *Pachak Agni* (digestive fibre). Impaired digestion at the tissue level produces *Ama* (toxic remains in the body due to improper digestion). This causes an accumulation of bad cholesterol and blockage in the blood vessels. Lotus helps to manage this condition by removing *Ama* (toxin remains in the body due to improper digestion) due to *Lekhan* (scrapping) property. Its leaves are also beneficial in liver disorders like fatty liver as it contains certain photo-constituents. These photo-constituents works by maintaining the level of protein hormone (adiponectin) which further help in the breakdown of complex fat and sugars. Fatty liver is a condition that occurs due to *Agnimandya* (low digestive fibre) which leads to indigestion and loss of

appetite. Lotus helps to manage this condition due to its (*Laghu*) light, *Kashaya* (astringent) and *Balya* (strength provider) properties and helps to improve liver functions. Lotus flower extract may be useful as a skin whitening and anti-wrinkle agent. It inhibits the enzymes that are responsible for the formation of melanin (that darkens the skin) and wrinkles. Lotus oil is helpful in preventing greying of hair by stimulating the production of melanin.

Lotus Tea



Figure 1- Natural Setup of Vembanad Lake around 6.30am, where water lily i.e., lotus used to bloom there with their organic fragrance (originally captured).



Figure 2- Lotus flowers with stem brought back to room temperature (picture captured in original).



Figure 3- Hydrated in water bucket to see when they will bloom. They used to close their petals at night and used to bloom in water during morning till sunlight. (An observation)- originally captured.

Grown in the northern province of Thai Nguyen in Vietnam, Che Sen i.e., Lotus Tea is fine green tea infused with the aroma of lotus flower blossoms. It was

created originally for King Tu Duc. During the night, as the nectar of the flower was at the fullest, the servants used to go for rowing in the lake in the place where the lotus used to grow. Apart from the fact that the kings used to enjoy drinking lotus tea, people at the beginning of the Nguyen Dynasty used to consider drinking of tea as an art. Sooner, it became a custom where people used to take the boat onto the pond as well as lakes on the moonlit nights as the lotus flowers were about to bloom. They used to place the tea in the blossom and close the same with the aid of string or ribbon. During the morning, they would find that the tea was filled with the sweet scent of lotus. In addition to this, they used to collect the dew of the night time. They used to collect sufficient dew for the addition of the same in the teapot. After sleeping for a lot of hours, they used to spend a wonderful afternoon while drinking the delicious lotus tea.

Lotus tea contains a lot of fibre and can promote large intestinal peristalsis and help digestion which can remove toxins. It has been known to facilitate absorption of nutrients by triggering the secretion of gastric and digestive juices in the intestine. The Egyptians revered this flower and used it to experience spiritual awakenings, fully aware of its effects. The psychoactive component Atropine makes this flower a strong hallucinogen. Ancient Egyptians used Blue Lotus in combination with Mandragora (another psychoactive plant) to conduct healing rituals.

Making Procedure- Let the petals boil and dried. Infuse into empty tea bags using tea paper with label (optional). Boil water, dip bag for 2 to 3 minutes. Drink in your mug. For best results, drink daily and that too empty stomach.

Caffeine Level in Lotus Tea- Each serving contains as much natural caffeine as coffee; 140-160 mg per cup; 3* the energy levels of traditional caffeinated teas. This makes Lotus Super tea the strongest on the market.

Benefits of Lotus Tea

Increases Blood Circulation- Lotus tea is a great way to improve blood circulation and increase energy levels. Iron and Copper, which are contained in this drink are very important for the production of red blood cells. Poor circulation can be very dangerous to one's health and the symptoms include cold fingers and toes even when it's hot outside, numbness, lack of energy, dizziness, cramps and headaches.

Supports Mental Function- Lotus tea can actually be beneficial to your cognitive function. Zinc, a mineral contained in lotus tea, is shown to pair up with vitamin B6 and improve the function of neurotransmitters.

Level of Blood Sugar- High in potassium, it helps to maintain healthy blood sugar levels. If you experience symptoms like constant thirst, increased urination,

sudden weight loss, fatigue or low energy levels, it could be due to high blood pressure. Lotus tea makes your blood vessels more relaxed thus improving and increasing blood flow and regulating blood sugar levels.

Maintains Healthy Digestive Function- It has been known to facilitate the absorption of nutrients by triggering the secretion of gastric and digestive system via intestines.

Promotes Collagen Generation- Collagen's most well-known benefit is its ability to promote glowing and vibrant skin. This essential protein provides elasticity to the skin, helping it to appear youthful and healthy. It also helps build muscle and burn fat. It aids in the reduction of cellulite.

Promotes Deep Relaxation- Drinking lotus tea regularly can help you to de-stress because it is high in Vitamin B, you also get pyridoxine in the body. This component can directly interact with neural receptors in the brain to influence mental state as well as positive, calm you down, and make you feel more grounded and connected.

About Vembanad Lake of Kerala, India

Vembanad, too known as Punnamada is the longest lake in India as well as the largest lake in Kerala. With an area of 2033 square kms and a length of 96.5 km, it is the second largest Ramsar site in India only after the Sunderbans in West Bengal. Spanning several districts in the state of Kerala, it is known as Vembanadu Lake in Kottayam, Vaikom, Changanassery, Punnamada Lake in Alappuzha, Punnappra, Kuttanadu and Kochi Lake in Kochi.

Features

Coordinates	9 degrees 35'N 76 degrees 25'E
Primary inflows	Achenkovil, Manimala, Meenachil, Muvattupuzha, Pamba, Periyar
Primary outflows	Several Canals
Basin countries	India
Maximum length	96.5km (60.0mi)
Maximum width	14km (8.7mi)
Surface area	2033km ² (785sq mi)
Maximum depth	12m (39ft)
Surface elevation	0m (0ft)
Islands	Pathiramanal, Perumbalam, Pallippuram
Settlements	Kottayam, Alleppey, Cochin, Cherthala
Ramsar wetland-	

Official name	Vembanad- Kol Wetland
Designated	19 August 2002

Kuttanad, also known as The Rice Bowl of Kerala has the lowest altitude in India and is also one of the few places in world where cultivation takes place below sea level. It lies on the southern portion of Vembanad. The Nehru Trophy Boat Race is conducted in a portion of the lake. High levels of pollutants have been noticed at certain hotspots of the Vembanad backwaters. The Government of India has identified the Vembanad wetland under the National Wetlands Conservation Programme.

Hydrography and Geography

Vembanad Lake is 96.6km long, making it the longest lake in the country. The wetland system covers an area of over 2003.02 km² thereby making it the second largest wetland system in India only after Sunderbans in west Bengal. Of this, an area of 398.12 km² is located below the Mean Sea Level and a total of 763.23 km² area is located below 1m MSL. It is approximately 14 kms wide at its widest point. The lake is fed by 10 rivers flowing into it including the six major rivers of central Kerala namely Achenkovil, Manimala, Meenachil, Muvattupuzha, Pamba and Periyar. The total area drained by the lake is 15770 km² which accounts for 40% of the area of Kerala. Its annual surface runoff of 21900 Mm accounts for almost 30% of the total surface water resource of the state. The most popular location on the shores of the lake is the Kumarakom Tourist Village situated on the east coast of the lake. The Kumarakom Bird Sanctuary is located on the northern fringes of Kumarakom village. The Vembanad wetland system was included in the list of wetlands of international importance as defined by the Ramsar Convention for the conservation and sustainable utilization of wetlands in 2002. It is the largest of the three Ramsar Sites in the state of Kerala. From the past few years, the lake faces a major ecological crisis and has reduced to 37 percent of its original area as a result of land reclamation.

A unique characteristic of the lake is the 1252 metres (4108ft) long Thanneermukkom salt water barrier constructed as a part of the Kuttanad development scheme to prevent tidal action and intrusion of salt water into the Kuttanad low lands. It is the largest mud regulator in India and essentially divides the lake into two parts- one with perennial brackish water and the other with fresh water from rivers draining into the lake. This barrier has helped farmers in Kuttanad by freeing the area of salinity and allowing them an additional crop in the dry season. The Thanneermukkom barrier is located at one of the narrower parts of the Vembanad lake. Only two-thirds of the original number of gates are opened in July to

release flood flow. These gates remain closed until mid-November. The main drawback of the structure has been the loss of opportunity for fish and prawns to migrate upstream, and also an increase in weed growth in the upstream, severely restricting the natural flushing of pollutants. The Thanneermukkom bund has also created ecological problems, primarily, the rampant propagation of the water hyacinth in fresh water.

Results via Analysis

Name	Sample 1	Sample 2
Carbonate	Not present	Not present
Bicarbonate	0.9	1
Calcium	0.9	0.3
Magnesium	1.4	1.8
Chloride	1.2	1.8
Silicate	9.576	10.297
Sulphate	73.34	73.136
Sodium	8.9	15.2
Potassium	3.2	3.8

CONCLUSION

Lotus flower leaves is having the capability to underestimate health related problems like diabetes, blood pressure i.e., LDL, blood circulation and indigestion. Its regular intake promotes health cum mental upbringing. One should consume it as a part of daily meal.

Ethical & Consent statement- There is no misuse of ethics and the work procedures are with consent without any discrepancies.

REFERENCES

1. Vembanad Wetland Conservation Program- Ashoka trust for research in ecology and the environment. International Journal of Ayurveda. 2006; 2(1); 15-25.
2. Suchitra, M (13 August 2003). "Thirst below sea level" The Hindu. Archived from the original on 22 September 2019. Retrieved 17 November 2020.
3. "Ramsar Sites in Kerala" (PDF). ENVIS Centre, Kerala "Kumarakom" Archived from the original (PDF) on 21 July 2011. Retrieved 7 February 2011.
4. Lotus and its Tea Health Benefits from: <http://www.medtext.com>

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