It was a surprise to see a cart filled with miniature greenish black cow-skull like structures being sold by a vendor at Dharmaraya Temple road in Bangalore some time back. Later, the peculiar structures turned out to be fruits of *Trapa natans* L., an aquatic angiosperm belonging to the family Trapaeeae. The local name was *Shingoda* or *Singhara*, as popular in North India. The vendor tried to localize the name by calling it 'neeru kadalaekai'.

*Singhara* is known by various names like 'bull nut', 'European water chestnut', 'water chestnut' and 'water nut'. *T. natans* L., an annual plant introduced from Asia, has become abundant in north-eastern United States where it creates a nuisance in lakes, ponds, canals and other slow-moving water bodies. It grows best in shallow, nutrient-rich lakes and rivers and is generally found in waters with a pH range of 6.7 to 8.2. This obnoxious weed out-competes native plants for sunlight and spreads either by the rosettes detaching from their stems and floating to another area, or more often by the nuts being swept by currents or waves to other parts of the water bodies.

The fruit can be eaten raw or boiled and used for preparation of curry after removing the outer thick shell. The fruit matures into a nut-like, barbed spiny fruit. The single-seeded woody fruits produced from the previous year germinate in early spring. Ungerminated seeds may remain viable for up to 12 years. However, most seeds probably germinate in the first two years. A single seed may give rise to 10 to 15 plant rosettes. Each rosette can produce up to 15 to 20 seeds. Currents or waves also carry nuts to other parts of the water bodies.

Investigations of archaeological material from southern Germany indicate that the prehistoric population of that region may well have relied significantly upon wild water chestnuts to supplement their normal diet and, in times of cultivated cereal crop failure, water chestnuts might even have been the main dietary component. In the Chinese Zhou Dynasty, water caltrop was an important food for worship as prayer offerings where the worshipper “should use a bamboo basket containing dried water calturns, the seeds of *Gorgon euryale* and chestnuts”. The *Chinese Herbal Medicine Summary* indicates that water caltrorp can help fever and drunkenness.

It was possible to buy water chestnuts in markets all over Europe until 1880. In northern Italy the nuts were offered roasted, much as sweet chestnuts are still sold today. At many places in Europe water chestnuts were known and used for human food until the beginning of the 20th century. Today, however, it is a rare plant. There may be several reasons for its near extinction, such as climate fluctuations, changes in the nutrient content of water bodies, and the drainage of many wetlands, ponds and oxbow lakes.

Water chestnut is a popular fruit in many parts of India, Pakistan, Sri Lanka, Indonesia and southern China. The kernels contain 16% starch and 2% protein. The plants grow well in ponds, lakes and even shallow streams. Succulent, slightly crunchy and delicately sweet, water chestnuts are munched raw, seasoned or salted, and even ground to make flour. This last quality makes it a favourite in Northern India for those who abstain from cereals during religious fasts: the flour (*singhare-ka-atta*) is a staple food material in many a household during the October-November festive season. *Puris*, and a sweetmeat called *katle* are some popular savouries made from water chestnut flour.
Milk suppliers often use its powder in milk to make it creamier. Harvested between October and December, water chestnuts are valued in traditional systems of medicine, such as the Ayurveda, for their cooling and astringent properties. They are reputed to reduce heartburn, fatigue and inflammation and are also useful against blood disorders, urinary tract infections, bad breath, toothaches and dehydration. The fruits are useful in burning sensation, dyspepsia, leprosy and dysentery.

Water chestnut is nutritious and a good source of potassium and vitamin B. It contains antioxidants, which may help reduce wrinkles and protect skin from ultraviolet rays. Many bioactive agents in water chestnut help reduce hair loss. The water chestnut ointment and lotion may help reduce inflammation and pain caused by sprains and other injuries. The rind of water chestnut exhibits antimicrobial activity.

But it is a menace too. The spines of chestnut fruit in lakes can penetrate shoes. This plant also severely limits the passage of light into the water, a critical element of a well-functioning aquatic ecosystem. It reduces oxygen levels, which may increase the potential for fish kills. Water chestnut also limits boating, fishing, swimming and other recreational activities. Fasciolopsiasis, an infection caused by the largest intestinal fluke of humans can be transmitted from the surface of the aquatic plants like *T. natans* L. From there they can be passed on to pigs, humans and other animals by raw consumption. Because of this reason and also possible toxicity from polluted water, the kernels should be boiled for an hour before consumption.

Regulated cultivation of water chestnut is quite economical because floating uplifted plants can further spread their shedded seeds downstream.

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The potential of *T. natans* L. seeds to lay dormant for up to 12 years makes its total eradication difficult. Hand harvesting from canoes and raking has been effective and is also a means to promote community involvement. For large-scale control of *T. natans* L. populations, which can form dense, thick mats capable of covering miles, the chemical method is employed by using herbicides along with mechanical harvesting. Aquatic plant harvesting boats are often employed in instances where waterways are blocked and herbicide (2,4-Dichlorophenoxy acetic acid) has been tested and deemed safe.

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