

Lan Su Garden Plant Talks

Lotus (蓮蓉 “lian”) & Water Lily (荷花 “hehua”)

Elizabeth Cha Smith (09/09/2017)



Nelumbo nucifera (lotus)



Nymphaea (water lily)

Lotus and Water Lilies in Our Garden

During the warm summer months, we all enjoy seeing blooming lotus and water lily in our garden's Zither Lake (we have about 70 of these plants that come to us from China through a local nursery). The water lily flowers bloom first in June and July for about 5-6 weeks, while lotus flowers appear mostly during the month of August when temperatures get hotter. Although the two aquatic plants, lotus (above left) and water lily (above right), look rather similar¹, it is easy to distinguish the two. Water lily float on the surface on the water, and lotus stand above the water on stems that can get as tall as four feet. Also, lotus have a showerhead-like seedpod in the center of the flower head (which is absent from the water lily). Under water, both plants grow from rhizomes (below), which are fat, potato-like, edible underwater stems that are linked and send out shoots from its nodes.



The beautiful water lily plays an important function in keeping our pond healthy. The shade from the lily leaves provides shelter for fish during the hot summer and helps control algae growth by lowering the water temperature.

Water lily vary in their colors, sizes and shapes depend on where they grow. The large, circular leaves of our 'Hearty Variety' have a distinctive slit and are about 18 inches wide. The leaves are covered in fine hairs which repel water and trap air to help them float. Water caught in the dipped center of the leaves will travel through a central pore that connects to the bottom of the plant, the rhizome.

¹ Although 18th century naturalists originally misclassified lotus as belonging to the water lily family, the plants belong to two different orders, *Nymphaeales* (water lily) and *Proteales* (lotus).

Chinese Culture: Lotus and Water Lily

In Chinese culture, the lotus is rich with symbolism, some of which is based on how the lotus rises up out of the mud (a metaphor of human suffering) and produces an astonishingly dazzling flower--untainted and pure (a metaphor for enlightenment). The lotus is also a symbol of friendship, peace, and marital harmony. The Chinese word for lotus, *lian*, sounds like the other Chinese words for 'unite' and 'harmony'. In Chinese Buddhist tradition, the lotus plant perfectly embodies life with the seeds representing the past, the flower the present, and the stalks the future. Not surprisingly, the lotus appears in all forms of Chinese art--paintings, silk embroidery, lacquerware, and more.

The seeds of lotus and water lily both contain calcium and potassium and are used widely in Traditional Chinese Medicine for blood clotting, digestion, insomnia, and diarrhea.

The seeds, leaves, rhizomes, and stems of both lotus and lily are all used in Asian cuisine and contain carbohydrates, protein, vitamin C, and potassium. The fragrant leaves, dry or fresh, can be used as wrappers to steam and enhance the flavor of meat or fish. Ground lotus seeds are an important ingredient for the mooncakes that are eaten during the Mid-Autumn ("moon" or "harvest") Festival that takes place on the 15th day on the 8th month of the lunar calendar each year.

Lotus Pollination

The most exciting thing about lotus is its thermogenic ability to produce heat to attract pollinating insects like pollen beetles. In 1996, an Australian scientist found that a lotus flower could maintain an interior temperature of 86°F - 95°F even with an ambient temperature of 50°F!

The lotus flower lasts three to four days, so the lotus pollination process starts the moment the flower petals are barely open on the first day. When that happens, the slightly aromatic, sticky stigmas attract insects to the flower. Once the insects, who are coated with pollen from another flower, are inside the lotus flower, the flower head closes itself at night. Trapped in 90°F or warmer temperatures, the insects feed on rich pollen and mate. When the flowers open wide the next day, the male reproductive, the stamens, release their pollen into the air. By the third or fourth day, fertilization is complete, and the creation of a new lotus plant will repeat.

The shape and pollinating habits of the lotus have not changed over the 135 million years that the plant has been in existence.

Water Lily Pollination

For water lilies, as soon as the flower opens up on the first day, the female reproductive organ, the stigmas, produce a fragrant, sticky liquid in the center of the flower. Pollen brought in by pollinating insects gets dissolved in this liquid and travels down to the ovary for fertilization that leads to seed production. On days three and four, the flower's stamens release pollen that is carried to other flowers. Over the next several weeks, the seeds in the ovary mature under water and produce up to 2,000 seeds. The hard seeds float before sinking into the mud where they start a new life cycle.

Like the lotus, water lily are an ancient plant from the Cretaceous era (~145-65 million years ago).

Lotus and Water Lily Cultivation

Lotus and water lily have the same cultivation needs: full sun all day until late afternoon and balanced fertilizer. Some of our water lily and lotus plants are in containers that are approximately 2' wide and 7" deep with 4" of heavy soil and 2-4" of water depth over the soil. The water lily that grow from the bottom of our pond are supported with heavy soil and pea gravel that holds the soil and prevents fish from disturbing it. Both plants do well in still water, not running creeks. The ideal place to grow both plants for maximum bloom is an earth bottomed pond where the rhizomes can run freely.

Conclusion

It would be a great fortune for any Chinese family to have a large porcelain pot in their courtyard in which to grow a lotus or water lily accompanied by some rock features and even a miniature house. Collectively, these would serve as auspicious symbols for prosperity, purity, longevity, peace, and continuous harmony for the family.

During the summer months in our Garden, there is no flower as lovely, enchanting, and mesmerizing as our Sacred lotus. For many of our visitors, our lotus and water lily flowers are a rare and special treat that inspire them to gaze for long moments before they start clicking away on their cameras. As visitors try to capture the flowers' ephemeral and iridescent beauty in pictures, I wonder how many of them have any inkling about the deep cultural and spiritual significance of both plants in China and in Buddhism and Hinduism. I hope this brief discussion may help enhance the experience of volunteers and visitors with the lotus and water lily plants and flowers in our Garden.