

***Ginkgo biloba*- a fossil tree**

- G. K. Sangat

History and origin:

Ginkgo biloba is the oldest living tree on our planet earth. Ginkgo tree is the only living representative of the family *Ginkgoaceae*. Ginkgo's fossil records indicate that it has been growing on the earth for 250 million years when dinosaurs used to roam here. Charles Darwin, father of Evolutionary theories named it as a living fossil tree.

Being leaves resembling to that of Maidenhair Fern, ginkgo is also known as Maidenhair Tree. The word "ginkgo" is derived from the Japanese word *ginkyō*, which stands for "silver apricot" referring to its fruits (seed). However, Ginkgo is originated in China from where the tree was spread to Japan, Korea and throughout the world. Since ancient times, Chinese and Japanese monks have preserved ginkgo by planting them as sacred and fire-resistant trees in and around their monasteries, shrines, temples and mountain gardens. Once thought to be extinct, German biologist Engelbert Kaempfer discovered it in Japan and wrote scientific description of the tree. Kaempfer was the person who named this plant Ginkgo in 1690. And he introduced ginkgo to Europe by taking seeds from Japan.

Ginkgo is an attractively beautiful tree which has fan-shaped leaves. In the autumn the whole tree becomes completely golden-yellow as its leaves change color. Chinese people view this tree as a "Symbol of Good Luck" where as people in Japan take it as the "Bearer of Hope".

Characteristics of the tree:

Ginkgo is virtually free of dust, pollution, fungi, insects and diseases. This tree grows well in modern city environment. We can find ginkgo trees in many cities around the world. The Japanese capital city Tokyo has been growing ginkgo as its symbolic tree of the city. In 1758 a ginkgo tree was planted in Kew Gardens in London, which is now over 200 years old. In Holland Botanical Garden, Utrecht, it was planted in 1727. Ginkgo was first planted in United States by William Hamilton in 1784. Individual ginkgo tree can survive 2000 years. It is said that most ginkgo trees in Chinese Tianmu Shan Reserve are estimated to be over 1000 years old.

Ginkgo tree is dioecious meaning male and female flowers grow on different trees. Ginkgo can reach a height of 30 meters. The trunk can develop about 4 meters wide in diameter. Initially ginkgo can grow average 36 cm a year provided it is planted in a favorable condition. This tree can grow from full sun to partial sun and prefers moist, deep, sandy soils. However, ginkgo is very adaptable to stressful situations, including poor soils, varied soil pHs, soil compaction, heat, drought and even city pollution. Therefore, ginkgo is called urban tolerant tree. Ginkgo is no longer the tree of wilderness. Most of the living trees are found in the cities. Being a deep-rooted tree, wind and storm can hardly damage it. So, we can avoid tree related accidents that occur in every rainy season in Kathmandu valley by replacing low-rooted poplar (*Populus spp.*) trees with *Ginkgo biloba*.

Ginkgo biloba virtually can be grown in Kathmandu situations. Since it is a non-invasive tree species, it does not negatively harm the ecology and other plant species of the surrounding areas where it is planted. It is a peaceful tree.

Inherent power of resistance:

Ginkgo has got incredible resistance power. During World War II in 1945 an atomic bomb was dropped in Japanese city of Hiroshima. Everything was converted into ashes. But one ginkgo tree, which was situated less than a kilometer from the epicenter of nuclear explosion remained intact. In September of the same year, this tree started to bud without any major deformations. Hence, it became a 'bearer of hope' to people of Hiroshima.

***Ginkgo biloba* trees in Nepal:**

In Nepal, we can find few trees in different parts of Kathmandu valley. It is said that a total of 70 trees exist here in Kathmandu, some of which were planted during Rana regime. The then Chinese Premier Zhao Ziiang planted Ginkgo tree in the Royal Botanical Garden, Godavari on 5th June 1981 to commemorate the friendly visit.

Ginkgo plantation in Tundikhel:

Save the Environment Foundation jointly with Love Green Nepal planted 250 *Ginkgo biloba* in Tundikhel area. The tree plantation was inaugurated by then Prime Minister Mr. Surya Bahadur Thapa.

Similarly on June 5th 2004 on the occasion of the World Environment Day, SEF and LGN initiated plantation of Ginkgo in western boarder of Nepal Army Headquarters along the Sundhara-Tripureshwor Road.

Use of ginkgo extracts:

For the last 5,000 years *Ginkgo biloba* has been used as a non-toxic major herb in Chinese Traditional Medicine. Its extracts have been used for asthma, coughs, allergies, aging, circulatory disorders, and memory problems. It is also being widely used for mental alertness, vertigo and tinnitus, impotence, altitude sickness, Alzheimer's disease, etc.

Ginkgo is very effective in increasing blood flow to the brain and throughout the body's network of blood vessels that supply blood and oxygen to the organ systems. Ginkgo increases metabolism efficiency, regulates neurotransmitters, and boosts oxygen levels in the brain, which uses 20% of the body's oxygen. Study results have suggested that ginkgo can cure retinal deterioration by increases blood flow to the retina. Hence, it is also useful in increasing visual acuity.

In the last 30 years, more that 400 studies have given clinical evidence that *Ginkgo biloba* extract prevents and benefits many problems throughout the entire body. Ginkgo is gaining recognition as a brain tonic that enhances memory because of its positive effects on the vascular system, especially in the cerebellum.

Every year between 1.5 million and 2 million kilograms of ginkgo leaves are harvested for medicinal purposes worldwide. A third of this is used in Germany.
