

The Ginkgo

CULTURAL BACKGROUND AND MEDICINAL USAGE IN CHINA

by Heiner Fruehauf

In the Western hemisphere, the ginkgo tree has long been a symbol for the exotic atmospheres of East Asia. More recently, German researchers have tapped into the memory enhancing effect of the ginkgo leaf, triggering an avalanche of books and articles on the medicinal properties of the ginkgo. As the Western public becomes increasingly exposed to various ginkgo products, I would like to take the opportunity to reflect on the rich cultural lore and early medicinal usage that characterise this plant in its country of origin, China.

The Ginkgo Tree (Yinxing)

The ginkgo tree is generally recognised as one of the oldest trees in the world. Botanists often describe it as a "living fossil" since it is a surviving specimen of a stage of plant evolution that was annihilated during the last ice age. Among its unique features is the fact that the ginkgo blooms only at night and sheds its blossoms immediately, as if celebrating the wonder of life in secret. Another ancient characteristic is its yin-yang quality. As an ancient Chinese botanical treatise notes "There are male and female ginkgo trees, and only if the male and female trees are planted together, there will be seeds; or if [the female tree] is planted by the side of a pond where it can reflect itself in the water, there will also be seeds"¹. The herbal scholar Li Shizhen later emphatically described the same phenomenon and added "If one drills a hole into the side of a female ginkgo and inserts a branch from a male ginkgo, the tree will also generate seeds - does this not illustrate the marvellous workings that result from the attraction of yin and yang?"² To the ancient Chinese people, however, the ginkgo was more than just a curious botanical anomaly. Apart from being a manifestation of the sacred concept of yin and yang, the tree was primarily a symbol of longevity and vitality. Most ginkgos grow to an imposing height and width during their lifetime, often living for several millennia. Many Daoist temple courtyards feature ancient ginkgo trees that are thousands of years old, and one particular tree is said to be about 10,000 years old³. In many cases, the trees predate

the temple structure and often mark the locale of early shamanic worship. As a mysterious, long-living tree with roots in great antiquity the ginkgo was an ideal candidate for the practice of shamanic tree worship. Li Shizhen reports that "Daoist shamans used to engrave their magical spells and seals on old growth ginkgo wood in order to communicate with the spirit world"⁴. Ginkgo trees, moreover, are known to survive catastrophic events much better than other living organisms. Many of the old ginkgos that still exist in China show signs of severe lightning damage but have developed new growth atop their disfigured trunks. Eyewitness reports from post-war Hiroshima and Nagasaki relate that it was particularly ginkgos and cockroaches which rapidly thrived again in areas most affected by atomic bomb radiation.

It therefore appears that within the animistic belief system of a living universe that informed all later schools of Chinese philosophy, science, and religion, the ginkgo tree was revered both as a symbol of the sacred life force and as a living witness to the antediluvian age of the sages who are said to have laid the foundations of Chinese civilisation. It is noteworthy in this context that the ginkgo's original Chinese name was Gongsun Tree (gongsun shu). This term relates it specifically to the most illustrious of China's civilisers, the Yellow Emperor, who is often referred to by his family name, i.e. Gongsun. This legendary figure is generally credited with the systematic study of inner and outer alchemy, yin and yang, the five phases, and other basic concepts of Daoist science and medicine.

It is thus perhaps not a coincidence that the modern ginkgo species appears to have spread over China and the rest of the world from Mt. Qingcheng, a place that is remembered as a key area of prototypical shamanism and Daoist hermit science. As legend has it, it also marked one of the Yellow Emperor's prime destinations in his journey compiling the sacred knowledge of his time. It is this mountain range in Southwest China, a sheltered branch of the Eastern Himalayas, that has recently been identified by botanists as potentially the only place where the ginkgo

originally survived the ravages of glaciation and global flooding that accompanied the last ice age⁵.

Drawn by the unique flora and fauna of this region, many scholars have come to Mt. Qingcheng during the last century, including the American botanist E. H. Wilson and the German plant researcher W. Limpricht. Today, international research teams continue to be intrigued by the botanical and geographical features of the mountain, and routinely collect botanical samples from here as well as from nearby Mt. Emei and Mt. Gongga. At the same time, Mt. Qingcheng ("The Lush Thicket Mountain") draws attention as the birthplace of religious Daoism, where the hermit Zhang Daoling turned his cave into the centre of an organised religion in 143 CE. Meanwhile, the ginkgo tree, still growing abundantly on the low altitude slopes of Mt. Qingcheng, has become a vital symbol of the cultural and botanical fertility of this region, and perhaps Chinese civilisation in general.

One of China's most famous ginkgos is appropriately located in the vicinity of the hermit cave where Zhang Daoling, later called the Heavenly Teacher, once practised internal and external alchemy and conducted shamanic healing rituals. Said to have been planted by Zhang himself, this tree is estimated to be almost 2,000 years old. By now it has grown to a height of more than 50 metres, with a circumference of 706 cm, and a trunk diameter of 224 cm. The tree's imposing stature is further enhanced by numerous "roots" that seedlings from centuries of falling ginkgo nuts have grown in the air and that now surround the upper portions of the trunk like stalactites hanging down from the ceiling of a cave. When later generations built a temple around the hermitage, the tree became incorporated into the structure which is still called Cave of the Heavenly Teacher (Tianshi Dong). This tree, China's ginkgo of ginkgos, has been eulogised by many a traveller, such as the Qing dynasty poet Li Shanji:

In exquisite billows the foliage
Cascades from its shrouded source in the sky,
Green abundance veils the top,
Dwelling place of the lone crane;
Like a dancing phoenix,
Its trunk soars to the clouds,
Like a coiled dragon perching on a cliff
Its invisible qi⁶.

Ginkgo names

As the symbol of a long and rich history of cultural heritage, the ginkgo has been given many different names over the ages. Most names refer either to the shape of the leaves or the seeds, or to its ancient and aristocratic status among the trees of the Asian continent. In order of familiar usage, Chinese terms for the ginkgo tree are Yinxing (Silver Almond Tree), Baiguoshu (White Nut Tree), Yazhangshu (Duck Feet Tree), Gongsunshu (Yellow Emperor Tree), Fozhijia (Buddha's Fingernail Tree), and Lingyan (Eyes of the Cosmic Spirit Tree).

The ginkgo's formal botanical name in China, Yinxing (Silver Almond Tree), has been in use since the Song dynasty (10th century). Although the tree's seeds had long been used by the local populace in Southeastern and Southwestern China as a Lung tonic, it was only during the merchant dynasty of the Song that this item began to be treasured by the imperial court and henceforth became included in an official list of tributary items (gongpin). Tributary items represent the most valued agricultural products from each area in China that were ritually "dispatched to the emperor" (gong) every year, such as tea from Mt. Qingcheng, black rice from Hunan, etc. Since the shifting content of the official Chinese materia medica has historically been inextricably connected with the status of each herb at the imperial court, this development brought about an elevation of the ginkgo seed from unrecorded folk herb status (caoyao) to officially recorded materia medica status (guanyao). Since this time, the ginkgo's less fancy common names, Duck Feet Tree (yazhangshu) and White Nut Tree (baiguoshu), took second place to the more "imperial" sounding designation, Silver Almond Tree (yinxing). Li Shizhen, the Ming dynasty author of China's definitive materia medica, summarises the Chinese history of ginkgo terminology:

The ginkgo's leaves look distinctly like duck feet, thus the name Duck Feet Tree. During the Song dynasty, [the seeds] were first declared as a tributary item offered to the imperial court, and henceforth the tree's name was changed to Silver Almond Tree. This is because its seeds have the shape of small almonds and their shell is white. Today it is commonly called White Nut Tree⁷.

The Western name "ginkgo" or "ginkgo," by the way, is an adaptation of the Japanese transliteration of a mix of these terms, namely "gin" (yin: silver) and "ko" (guo: nut).

Ginkgo Seeds (Yinxing, Baiguo)

In recent times the ginkgo has most often been identified with its most precious medicinal part, its seed or fruit or nut (semen ginkgo). Although Li Shizhen has often been recognised as the first scholar to elevate the ginkgo seed to the level of academic discourse, it was more than two centuries prior to the publication of Li's authoritative *Outline of the Materia Medica* (Bencao Gangmu) that the seed made its debut as a recorded item of the Chinese medicinary. Wu Rui, the officially appointed medical authority in an ancient district close to modern day Hangzhou in Southeastern China, had previously compiled a list of 540 common foods with medicinal properties that included the ginkgo seed. The work was published in 1367 under the title *Materia Medica of Everyday Food Items* (Riyong Bencao). Wu practised and taught in an area that is to this day abundant with ginkgo trees, and where ginkgo seeds are routinely stewed with other food items for a variety of health problems. Although Wu Rui, Li Shizhen, and others agreed that the seed was toxic when consumed in its raw state, the opinions

of classical herbal scholars varied on the channel affinity of this medicinal item, including not only the Lung channel, but also the Heart, Bladder, and Kidney channels. It was, therefore, the authoritative voice of Li Shizhen that suggested the seed's classification most accepted by modern scholars and physicians of traditional Chinese medicine: neutral in terms of temperature energetics; sweet (not harmful to the Spleen/Stomach), bitter (descending), and tart (astringent) in terms of taste energetics; entering the Lung in terms of channel affinity; and calming asthmatic wheezing and astringing turbid excretions (from the vaginal and urinary tracts) in terms of pharmacological action. Today, the ginkgo seed continues to be prescribed regularly by traditional Chinese medicine practitioners around the world, either as a Lung tonic stewed with chicken etc., or as a key part of herbal formulas that address asthma, bronchitis, and leucorrhea.

Ginkgo Leaves (Baiguoye)

Although it is the seed that features most prominently in the Chinese materia medica, both oral tradition and written sources indicate that the medicinal properties of the ginkgo's leaves have been utilised just as early and extensively. Regional herb usage in Sichuan, Zhejiang, Guangxi, Hebei, Henan, Liaoning and other ginkgo rich provinces documents that the ginkgo leaf has been used as a folk herb for a long time, and most importantly, the ginkgo leaf received a formal entry in the official materia medica commissioned by the Imperial Academy of Medicine almost 500 years ago. After the ginkgo seed had been used in imperial circles for five centuries, the Ming dynasty court physician Liu Wentai decided that it was time to elevate the ginkgo leaf to official materia medica status. In 1505, he finished the compilation of a prolific herbal encyclopaedia that for the first time included the ginkgo leaf and many other folk herbs, i.e. locally used materials that are generally used by themselves and are rarely included in classic formulas. Liu's work was entitled *A Compilation of Essential Items of the Materia Medica* (Bencao Pinhui Jingyao) and contained 1,815 entries and 1,358 illustrations. It was one of the declared goals of this herbal primer to correct the apparent discrepancy between the common usage of certain medicinal items and the fact that they had not yet been properly recorded or classified anywhere. As the author stated himself in the preface:

And for those that have been left out from previous books, such as amomum (caoguo), kaempferia (shannai), anis (bajiao huixiang), camphor (zhangnao), smithsonite (luganshi), and other items, separate entries and illustrations have been fashioned. All of these are medicinal materials that are commonly prescribed by physicians, and thus should be properly acknowledged [in the official materia medica]⁸.

Unfortunately, Liu Wentai was held responsible for the sickbed death of emperor Xiaozong, and his compilation barred from publication until it was rediscovered in 1926.

The ginkgo leaf is classified in a very similar fashion to the seed. Its temperature energetics are defined as neutral; its energetic taste as sweet, bitter, and tart; its channel affinity extends beyond the Lung into the Spleen and Stomach; and its medicinal actions are cited as astringing the Lung, calming asthmatic wheezing, and halting diarrhoea by transforming dampness. Liu's original work introduced ginkgo leaf cookies, baked with a combination of ginkgo leaf powder and flour, as a remedy for chronic cold damp diarrhoea. The official P.R.C. materia medica gives the same indications as listed for the seed, namely phlegm induced asthma, chronic coughing, and leucorrhea⁹. The 1985 *Dictionary of the Chinese Materia Medica* (Zhongyao Da Cidian), perhaps the most complete of the modern encyclopaedias, adds that ginkgo leaf benefits the Heart and treats stuffiness in the chest, angina pectoris, and palpitations. Although this entry seems to be modelled after Western research that heavily emphasises the circulatory affect of the leaves, experts say that local folk usage has included the Heart and brain related indications for centuries (see Wang Chunwu interview). It is possible that the ginkgo leaf has remained little known as a circulatory herb in China, because the comprehensive blood moving category of the materia medica features so many items that are cheaper, more readily accessible, and deemed more effective for this particular purpose.

Ginkgo Roots (Baiguogen)

The medicinal properties of the ginkgo root were first reported in the Sichuan herbal primer, *Chongqing Folk Herbs* (Chongqing Caoyao). Different from the seed and the leaf, the root is classified as a warm herb that affects the Liver and Kidney channels. A similar feature to the seed and the leaf, however, is its astringent affect. In particular, the root is described as astringing Kidney qi deficiency related turbid discharge from the lower burner, such as spermatorrhoea, dribbling urine, and leucorrhea.

To maximise the astringent effect, all three medicinal ginkgo items are properly harvested in September and October, when the metal qi of nature leaves its condensing and storage promoting energetic imprint on all living organisms. Because of this overriding astringing action, all ginkgo parts are contraindicated in true excess situations. In order of potency, the seed appears to be the strongest of the three, followed by the leaf and then the root. The seed is usually prescribed in amounts of up to 9g, the leaf up to 15g, and the root up to 30g.

Appendix: Sample Prescriptions

Ding Chuan Tang (Calm Wheezing Decoction)

Therapeutic principles: diffuses the Lung and descends reverse qi flow, arrests asthmatic panting and dissolves phlegm.

Symptoms and signs: general signs of internal heat phlegm (coughing with copious yellow sticky phlegm, asthmatic

panting and wheezing) and surface cold (aversion to cold, possibly fever).

Tongue: yellow greasy coating.

Pulse: slippery, possibly rapid.

Indications: acute outbreak of chronic bronchitis, acute bronchiolitis in children, bronchial asthma, emphysema.

Ingredients

Ma Huang (Herba Ephedrae) 9g

Bai Guo (Semen Gingko Bilobae) 9g

Xing Ren (Semen Pruni Armeniacae) 4.5g

Su Zi (Fructus Perillae Frutescentis) 6g

Ban Xia (Rhizoma Pinelliae Ternatae) 9g

Kuan Dong Hua (Flos Tussilagi Farfarae) 9g

Sang Bai Pi (Cortex Mori Albae Radicis) 9g

Huang Qin (Radix Scutellariae Baicalensis) 4.5g

Gan Cao (Radix Glycyrrhizae Uralensis) 3g

Typical modifications:

For obvious wind-cold increase Ma Huang. For fever increase Ma Huang and add Shi Gao (Gypsum). For absence of exterior symptoms or for old or deficient patients exchange Ma Huang for processed Ma Huang. For profuse yellow phlegm add Lu Gen (Rhizoma Phragmitis Communis), Jie Geng (Radix Platycodi Grandiflori) and Dong Gua Zi (Semen Benincasae). For rubbery phlegm clots that are easy to cough up but not yellow, remove Huang Qin and add Fu Ling (Sclerotium Poriae Cocos), Chen Pi (Pericarpium Citri Reticulatae) and possibly Cang Zhu (Rhizoma Atractylodis).

Notes: Dingchuan Tang first appeared in the 16th century collection *Popular Formulas for Cultivating Longevity* (Shesheng Zhong Miao Fang). The formula has very strong qi descending and anti-asthmatic properties. The focal point of the formula's design is the pairing of the distinctly dispersing Ma Huang with the distinctly astringing Bai Guo. In this manner the stagnation and congestion in the chest can be relieved without dispersing too much vital Lung qi. In China, where the incidence of chronic respiratory problems is extremely high, Dingchuan Tang is typically used for an acute flare-up of chronic bronchitis.

Chicken with Gingko Seeds (Baiguo Ji)

Therapeutic principles: tonifies qi and blood, astringes Lung qi and controls coughing and asthma.

Symptoms and signs: chronic coughing and/or asthmatic breathing, especially in the elderly; frequent urination; vaginal discharge, uterine bleeding.

Ingredients

One whole chicken

Bai Guo (Semen Gingko Bilobae) 200g

Some Sheng Jiang (Rhizoma Zingiberis Officinalis Recens), Cong Bai (Bulbus Allii Fistulosi), vegetable oil, Chinese cooking wine (shaojiu) or sherry, water, pepper, salt.

Preparation: Briefly fry the Bai Guo in oil until oil penetrates the skin, then remove from the pan and set aside. Wash the chicken well, then place with small amounts of ginger, green onions, cooking wine, pepper and an appropriate

amount of water into a pot. Bring to a boil on a high flame, then reduce to low and simmer for 1-2 hours or until the chicken becomes very soft. Add gingko seeds and salt and simmer for 15 more minutes. Eat the chicken, drink the soup.

Notes

- 1 See Peng Cheng, "Planting Gingko," in A Brush Wielding Traveller Capturing Strange Sights [Mo Ke Hui Xi], quoted in *An Encyclopaedia of Writings and Illustrations From Ancient and Modern Sources* [Gu Jin Tushu Jicheng], Chengdu: Bashu Shushe, vol.56, p.67530.
- 2 See Li Shizhen's revision of Li Dongyuan's work, *Medicinal Foods* [Shiwu Bencao], Zhongguo Yiyao Keji Chubanshe: Beijing, 1990, p.171.
- 3 For a list of ancient gingkos in mainland China, see Ma Wenfei et. al., *Interesting Tales About Medicinal Plants* [Baicao Yaoyong Quhua], Jiangxi Kexue Jishu Chubanshe, Nanchang: 1994, p. 147-48.
- 4 See *Medicinal Foods*, p.171.
- 5 According to a telephone interview with Prof. Wang Chunwu, author of *A Chronicle of Mt. Qingcheng* and the definitive authority on Mt. Qingcheng's regional civilisation, November 8, 1997.
- 6 Quoted in Wang Chunwu, *A Chronicle of Mt. Qingcheng* [Qingcheng Shan Zhi], Chengdu: Sichuan Renmin Chubanshe, 1994, p.14.
- 7 See *Medicinal Foods*, p.171.
- 8 See Yan Shiyun, ed., *A Comprehensive Study of Chinese Medical Works* [Zhongguo Yiji Tongkao], Shanghai: Shanghai Zhongyi Xueyuan Chubanshe, 1992, vol.1, p.1128-29.
- 9 See *The Chinese Materia Medica* [Zhongyao Zhi], quoted in Ran Xiande, ed., *A Sourcebook of Chinese Herbs* [Zhonghua Yaohai], Harbin: Haerbin Chubanshe, 1993, vol. 2, p.558.

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