

## GUANGHUA ZHU 1964-2005

Guanghua Zhu, Associate Curator at the Missouri Botanical Garden, was born in Manzhouli, Inner Mongolia in the Peoples Republic of China on January 17, 1964. Guanghua's parents moved from Central China with some of Guanghua's older siblings, walking and carrying their belongings much of the way. His father eventually got a job with the national railroad company working in the switchyards in Manzhouli, a major railhead for merchandise exchanged with Russia. Railroad workers lived in a small community near the edge of town and some land was available to his parents to grow crops. The growing season was short at this latitude and his parents grew carrots, cabbage and potatoes. After harvesting, the crops were buried in a hole outside the house and covered with straw to provide food during the winter months. His entire family slept in a large concrete bed covered with a mattress. The stove was built into the bed and a network of chambers passed through the bed to allow the smoke to pass outside. This insured that the bed remained warm during the long, cold nights.

From these humble beginnings, Guanghua Zhu prospered and gained great prestige both in China and in the United States. In 1985 at age 21 he graduated with a BS degree in Biology at the Inner Mongolia Teacher's University in Hohhot, China. From June 1985 through May of 1988 he worked as a Teaching Assistant of Systematic Botany at the university. In 1988 he received his MS degree in plant systematics from Inner Mongolia Teacher's University. During 1986 he also worked as a Research Assistant for the Institute of Grasslands at the Chinese Department of Agriculture in Hohhot.

From June 1988 through July of 1990 Guanghua was a Ph.D. candidate and Research Assistant at the Laboratory of Evolution and Systematic Botany, Institute of Botany, Chinese Academy of Sciences in Beijing.

While Guanghua was in Beijing he met David Boufford and Bruce Bartholomew, two of the first western botanists to visit China after the reopening of the country to foreigners. Guanghua accompanied them on trips to the field and the American botanists were very impressed with him and wished to help him develop his career. David Boufford recommended that he try to come to the United States to pursue his Ph.D. degree and suggested that he try the Missouri Botanical Garden. Boufford gained the assistance of Peter Raven who was interested in greater contacts with China following the initiation of the Flora of China Project in 1988.

Guanghua applied for and received entrance into the University of Missouri-St. Louis, arriving in St. Louis in the fall of 1990 shortly after the semester had already started. From August of 1990 to August of 1992 he was a Teaching and Research Assistant at the University of Missouri. He began working for the Missouri Botanical Garden's Flora of China at Project while still a Ph.D. Candidate and held that position from September 1992 to September 1995.

I believe that it was probably in the fall of 1990 that I first met Guanghua Zhu when he walked into my office at the Garden and asked if I would consider being his major professor. David Boufford had suggested that he contact me to work on Araceae. I suggested *Dracontium*, a difficult genus but one I deemed to be about the right size for a Ph.D. thesis. Admittedly I was dubious about his ability to deal with a project of this scope and initially he was discouraged but kept forging on and eventually he completed a thorough and well-written thesis. He obtained a National Science Foundation Ph.D. thesis award, traveled to Central and South America to do field work and made numerous contacts in the horticultural and botanical community to get the necessary materials for his thesis. Understanding

*Dracontium* required that he accumulate living material because herbarium material was notoriously difficult to determine. He made contacts all over the neotropics and learned from them. He had nearly all species in cultivation at the Garden.

From April through June, 1992 Guanghua attended the Organization for Tropical Studies course in Tropical Ecology in Costa Rica at La Selva. During the remainder of the summer and fall of 1992 as well in 1993, he worked on a US Army Corps of Engineers project making a floristic survey of the Upper Mississippi basin. In 1993 he received a National Science Foundation Doctoral Dissertation Grant to do field work and molecular studies of *Dracontium*.

In August of 1993 Guanghua went to Japan for the XVI International Botanical Congress. Following the congress we went together to Hong Kong, visited the botanical garden in Guangzhou where we stayed at the botanical garden's guest house. Next we flew to Hohhot where Guanghua had gone to school and I met many of his old professors and close friends. While in Hohhot one of his professors drove us up onto Mongolian plateau and we had lunch in a yak herder's yurt. Later we flew north to Hailar then took a train to his hometown of Manzhouli in Inner Mongolia near the Siberian border and I met all of his immediate family. We stayed with one of his sisters who had an apartment in the middle of town and sometimes bicycled out to visit his parents who lived in a community of current and former railroad employees. Most mornings his mother would arrive at the apartment for breakfast, bringing bags of fresh deep fat-fried bread that we ate with rice porridge. The markets in Manzhouli were rich in Russian goods including many fine furs. I asked Guanghua to purchase some things for me but his mother laughed when we told her what we paid and she would go off and purchase another for a much better price.

Guanghua had a wonderful family, with an older brother and three older sisters, all living near their parents in Manzhouli. Guanghua showed me where he attended high school and talked about his odyssey of moving from a small Chinese city, to the much larger city of Hohhot for his undergraduate studies and how he later made contact with North American botanists.

On the weekend we took a family outing to Hulun Nur, a large lake whose drainage formed the border with Siberia. There we had a large fish dinner and Guanghua and I collected plants in the area. Everywhere we went in China Guanghua had the trip well organized. We were met at each stop by friends who had already made arrangements for our lodging, taking care that we received the local rate and not the tourist rate. Finally before going back to the States we spent a few days in Beijing where we participated in the IV Chinese Drug Symposium held October 4-6, 1993.

During the summer of 1994 he traveled with me to Panamá and visited most parts of the country including Bocas del Toro, Chiriquí, El Llano-Cartí Road, El Copé, Cerro Colorado, and several areas in Panamá Province. We even flew to Darién Province and made a trek up onto Cerro Pirre. This was Guanghua's first trip to the tropics and he was excited by the collecting that we did. During this trip we collected many new species including a new species of *Dracontium*.

Typically we would collect most of the day then hole up in some small place with lights to process our collections. While I described the plants in my field book, Guanghua pressed the specimens. Since a lot of *Dieffenbachia* have a caustic burning sap, Guanghua was complaining one evening about getting sap burns. At the time he was pressing a specimen that I thought had non-caustic sap so as a way of showing him that he was being unnecessarily critical, I bit into the stem to show him that the stems were not really caustic. Much to my surprise this species was so caustic that I had to rush off to the bathroom to wash out my mouth (but I did not let on to Guanghua that I had been burned).

Guanghua soon grew tired of eating the food I had bought for our field trips, mostly sardines and canned meat that we ate with bread. Preferring to have a meal that included rice he decided to drive off in the vehicle one night during a rainstorm to go to a small restaurant where they served a typical Panamanian meal with rice.

Guanghua was a great believer in Chinese herbal medicine. Once when I got a serious cut in my leg caused by trying to jump over a log while wearing tree climbers, he opened his pack and sprinkled some special powder over the wound. He always claimed that he had saved my life that day since we were too far from hospital care to have the wound sewn up.

In 1995 Guanghua participated in the VI International Aroid Conference, Kunming, June 26-July 1, 1995. While in Kunming we took several side trips, one of which included Bob Thorne whom Guanghua called his "academic grandfather" because Thorne had been the professor of Jack Carter, who was my professor in college. We took another trip to western Yunnan Province and later went to Sichuan Province to collect with a friend of his. This trip took us about one day north to Jiuzhaigou with a side trip to Hongyuan Province out on the Mongolian plateau. Again Guanghua organized the trip so that I could take advantage of the trip to see more of China. On one occasion we went to a party given by the governor of the County.

Guanghua defended his thesis and graduated with his Ph.D. in 1996. After graduation he was offered a position as Research Assistant at the Missouri Botanical Garden working on the Flora of China Project with Ihsan Al-Shehbaz. This work took him repeatedly to China where he was responsible for interacting with collaborating Chinese authors. Guanghua was the principal translator for all of the volumes of illustrations of Chinese plants, contributed families himself and translated the 1999 Code of Botanical Nomenclature into Chinese. He regularly translated herbarium labels for Garden personnel. During the course of his career, Zhu made many collecting trips, mostly in Asia but also in Japan and Russia.

Among the noteworthy areas of recognition received by Guanghua Zhu are the Raju Mehra Award from the Department of Biology at the University of Missouri-St. Louis in 1993 and the Wang Kuanachen Award from the Chinese Academy of Sciences in 1998. He had been awarded scientific research awards, including a National Science Award for production of the Flora of China in 1996 as well as National Geographic Society Awards in 1996 and in 1999. He was a Committee Member for the Flora of China project at the Missouri Botanical Garden since 1986. Since 1999 he was the Managing Committee Member for the Orchid Society of China in Beijing and since 2000 was the Director of the International Center of Orchid Research and Conservation in Menglun, Yunnan Province in China.

Guanghua was also an adjunct Assistant staff member at the University of Missouri and had two students at the university, as well as a student at the Chinese Academy of Sciences in Beijing.

The passing of Guanghua Zhu will certainly leave a void in the Flora of China Project but his cheery and friendly personality and his particularly broad suite of skills will be sorely missed by all.

Thomas B. Croat  
Missouri Botanical Garden