

## TARO AND ITS UTILIZATION IN YUNNAN

YANG Yong - Kang

(Yunnan Agricultural University, Kunming 650204, China)

**Abstract** This paper expounded the utilization of taro as both food and medicine in ancient times. The modern cultivation, production and development in Yunnan of China are briefly presented here. Major commercial taros (cultivars) in Yunnan are investigated and appraised.

**Key words** Taro, utilization, food, medicine

Taro (*Colocasia esculenta* Schott), or YU (芋) in Chinese, belongs to the family Araceae. taro was original distributed in the marshland of tropical and subtropical Asia such as China, India and the Malay Peninsula. Now it is widely cultivated around the world, most commonly in China, Japan and the West Pacific islands. As early as the Warring States period of China (4th century B. C.), the record about taro appeared in a literature named "Guan Zi". In "Si Shengzhi's Works" (about the first century A. D., the Western Han Dynasty), the cultivated methods of taro were recorded in detail. Because taro needs high temperature and humid air for growth, its cultivation tends to decrease from south to north in China. Yunnan, situated in a low altitude plateau, with varied climates and habitats as well as a number of nationalities, is very diverse in the cultivation and utilization of taro.

### EVOLUTION OF TARO

#### 1. Evolution

By natural and artificial selections during a long time, the original taro, growing in marshland areas, formed 3 ecotypes (Water - taro, Land - taro and Intermediate - taro) and 2 varieties (*C. esculenta* var. *petiolata* Chang and var. *comosa* Chang). More cultivars and land races were produced from both of these varieties. The wild taro, which has not developed in either the stem tuber or petiole, is toxic and very astringent, and can not be eaten, has long underground stolons. Sometimes a very small tuber occurs at the tip of stolons, but it can only act as the propagation organ. From human selection, petioles and stem tubers, var. *petiolata* and var. *comosa* were formed respectively, from the latter 3 cultivars. Following the expansion of the mother tuber, its quality becomes delicate and less astringent in flavor, thus, "Mother - tuber - taro", the first cultivar, was formed. According to the shape of the mother tuber, ellipse, round or cylinder, it is classified into 3 types: "Diageio - taro", "Long Mother - tuber - taro" and "Bulky Mother - tuber - taro". These can generally found in the market. The second cultivar, "Multi - son - taro", is recognized by the small tubers at the tip of the stolons that expanding to form son tubers. These are better than mother tubers in weight and quality. The stolon shoots that lead to the son tubers are so close to the mother tubers that the former just produce on the latter. When the son - tubers and grandson - tubers are more strongly connected with their mother tubers that is not easy to distinguish them. This is the third cultivar, "Multi - head - taro". From these cultivars more land races have emerged.

The evolution of taro may be as follows:

Original wild taro —  $\left\{ \begin{array}{l} \rightarrow \text{var. } \textit{petiolata} \\ \rightarrow \text{var. } \textit{comosa} (\text{Diageio - taro} \rightarrow \text{Long Mother - tuber - taro} \\ \rightarrow \text{Multi - son - taro} \rightarrow \text{Multi - head - taro}) \end{array} \right.$

## 2. Varieties, Cultivars and Land Races of Taro

### (1) var. *petiolata* Chang

Some main land races of *Colocasia esculenta* var. *petiolata* as follows:

Guangdong red taro, Zhejiang delicious taro, Wulong edible leaf taro (Sichuan) and vegetable taro (Gejiu, Kaiyuan of Yunnan) use petioles as vegetable. Yuanjiang curved-stem taro whose creeping underground stems and young bud are used as vegetable, Kunming red taro whose petiole and pedicel are the main parts eaten.

### (2) var. *comosa* Chang

The major cultivars of *Colocasia esculenta* var. *comosa* are as follows:

a. Mother-tuber-taro: the plant large; the mother tuber larger than the son tubers and weighing 1.5-2 kilograms (over 1/2 of total plant weight); the quality of mother tubers is better than the son ones, starchy and delicious; the son tubers fewer and small and only act as propagation organs.

Fujian, Guangdong, Taiwan and Yunnan are the main distribution regions. Human-head taro of Kaiyuan and Jianshui, Midu large-head taro and Tengchong monk taro are common land races.

b. Multi-son-taro: tiller strongly; the son-tubers, which can be separated from the mother tuber, are abundant and heavier than the mother tuber, with glutinous quality.

Two types can be divided according to the color of petiole (green and red). Heap taro, Little green taro and Duck's-egg taro are some landraces.

c. Multi-head-taro: the plant little; tiller so strongly that the tubers grow thickly; the son-tubers and grandson-tubers so closely connected with their mother-tubers that they cannot be separated easily; the quality between starchy and glutinous.

Kunming green taro, Sichuan lotus taro, Shanghai dog's-claw taro, Guangdong dog's-claw taro etc. are the common landraces.

## UTILIZATION OF TARO

### 1. Food

It is usual to use taro as vegetable, but it is the main staple in some mountain regions of Yunnan, Guangdong, Guangxi and Taiwan (Hu, 1965; Beijing Agricultural University et al, 1990). The tubers of var. *comosa*, the mainly eaten parts, containing 1-2.5% protein and 10-20% starch, are very tasty. We eat them not only by cooking, but also by further processing them into taro powder or cake. The petioles of var. *petiolata* are the main parts for eating. Both tubers and petioles of Multi-son-taro are edible. The flowers and pedicels are also eaten in Kunming and other areas of Yunnan where fresh taro is on sale all year round. Because taro can be stored for a long time, they play an important role in the slack seasons of vegetables. Around the Spring Festival, people have so much oily food that the taro is very welcome as thick fiber vegetable. In addition, taro is used as a tribute for the Spring Festival in some regions of Jiangsu and Zhejiang.

### 2. Medicine

It was reported in the Stunts Collection of Chinese Famous Doctors that taro has excellent therapeutic effect to chyluria which could not be cured for a long time. "Taro...can regulate the function between the intestines and the stomach, and nourish the muscles, so that the skin is lustrous and full" according to the Herbal on Diet Therapy, the earliest work on food therapy in China. The record of "clearing away heat and resolving thirst" appeared in the Herbal of Tang Dynasty. "(taro) Can strengthen the middle-warmer, nourish kidney and replenish the vital essence." The Herbal of the South Yunnan recorded. The function of "circulat-

ing the body fluid" was described according to the Summary of Medical Circle. The records of "the juice of taro stems put on the skin dealing with the spider bite, sting by bee or wasp and the dog bite etc." and "the taro juice can remove oil from clothes" were written in the Annals of Anxi County, Fujian Province. Generally, it was regarded that taro has the functions such as invigoration but not dull, clearing but not damaging *yin*, removing oil and aiding digestion. It has been widely utilized in Traditional Chinese Medicine.

Table 1. Main Commodity Taro in Yunnan

Local Name (Translated into English)	Distribution in Yunnan
Elephant - leg taro	Gejiu, Kaiyuan
Heap taro	Kaiyuan
Black petiole taro	Mengzi
Head - like taro / Man head taro	Gejiu, Jianshui, Kaiyuan, Shidian, Yanshan, Maguan
Aquatic palm taro	Shiping (Yousuo)
Groove taro	Baoshan (Huamei)
Blooming taro	Baoshan (Huamei)
White petiole taro	Gejiu (Zhadian), Shiping (Yousuo)
Green petiole taro	Gejiu (Zhadian), Shiping (Yousuo)
Brown taro	Mengzi, Kaiyuan, Wenshan
Attaching mother taro	Shidian
Lotus leaf taro	Gejiu
Purple petiole taro	Baoshan, Weishan
Vegetable taro	Jianshui, Gejiu
Hairy green taro	Midu
Large mother - tuber taro	Midu
Aquatic taro	Wenshan
Dog's claw taro	Wenshan, Xichou

## COMMODITY TARO IN YUNNAN

There are many local taro cultivars in Yunnan. Table 1 shows the main taros with commercial values cultivated in Yunnan. The taros cultivated in Central Yunnan ( Kunming, Chuxiong, Qujing, Yuxi, Tonghai and their surrounding areas). It is believed to be the largest cultivation and consumption region of taro in Yunnan, are usually derived from the cultivars in Table 1.

## REFERENCES

- Beijing Agricultural University *et al*, 1990. Vegetable cultivation (South China version, 2nd edition): 360 ~ 363. Beijing: Agricultural Press  
 Hu C Z, 1965. Vegetables: 73 ~ 77. Taipei: China Publishing Bureau