

China's Burgeoning Aromatics Industry



By Chen Tao, China Features, Beijing, China

In "A Dream of Red Mansions," China's great 18th-century classic novel, the playful protagonist, Jia Baoyu, had a disconcerting propensity for eating the rouge he stole from the flock of beauty-conscious girls in his family. It's a habit that might have made any red-blooded hero blush. But the rouge was, in fact, made of fragrant flowers that had been pressed, steamed and combined with fat or other edible substances.

The tradition of using processed flowers both as cosmetics and food additives persists to the present day in China. Large food stores still sell fresh osmanthus and rose flower syrup to flavour food, while great quantities of fresh jasmine flowers and *Michelia alba* are used in jasmine tea, a major Chinese export item.

The widening use of aromatic plants now includes their flowers, seeds, leaves, barks, stems and roots. At the same time, the synthesizing of aromatic chemicals has also contributed to the development of an aromatics industry on a scale never before seen in Chinese history.

Almost nonexistent, as such, when the People's Republic was founded 33 years ago, the industry now has 36 perfumeries with about

9,900 employees, according to Liu Shuquan, a Light Industry Ministry executive in charge of the nation's production of natural and synthetic aromatics. According to statistics provided by the ministry, China now turns out more than 110

kinds of natural aromatics and essences and about 280 kinds of aromatic chemicals, totalling 25,753 tons in 1981. Of this total, natural varieties accounted for 6,600 tons, aromatic chemicals 10,980 tons and compounded flavors and fragrances 8,173 tons.

The prime growing regions of aromatic plants, totalling about 4,300 hectares, are located mainly in areas south of the Yangtze River: Jiangsu, Zhejiang, Guangdong, Guangxi, Fujian, Jiangxi, Hunan, Hubei, Guizhou and Yunnan. The cities of Shanghai and Tianjin produce the greatest amount of aromatic chemicals.

"The current level of production can hardly meet the increasing demand," said Liu, "since the rising living standard has caused the consumption of cosmetics and toiletries to increase by 20 to 30 percent every year in recent years. The food-processing, cigarette and other industries also need growing amounts of aromatics as well."

Products made with aromatic additives now total more than 5,000 in number according to Liu. To keep pace, the Light Industry Ministry plans to increase production of aromatics by 20% annually through 1985.

A Sino-U.S. joint venture of the Shanghai Corporation and Florasynth, named COSFRA, Ltd., is scheduled to begin operation in January 1983 to produce fragrances and flavors for cosmetics and food. With an initial investment of one million yuan, the venture is expected to reach an annual output value of 10 million yuan by 1985.

"Natural fragrances are traditional Chinese export items," Liu said. "We are planning to grow more aromatic plants and improve extracting techniques to boost production and raise quality."

China's vast and varied land area extends over tropical, subtropical and temperate zones which provide favourable conditions for the growth of aromatic plants and for breeding perfume-secreting animals.

"China has a total of 399 kinds of aromatic plants falling into 63 families, according to a general survey that was conducted by the Botanical Institute under the Chinese Academy of Sciences and the Commerce Ministry in 1958-59," said Wu Chengshun, a research fellow at the institute.

Aromatic plants from which fragrances traditionally have been extracted include jasmine, peppermint, spearmint, anise, *Pogostemon cablin* (patchouli), osmanthus, rose, *Michelia alba*, cassia and *Cinnamomum camphora* var. *linaloolifera* (ho oil).

The utilization of *Litsea cubeba*, according to Wu, is a typical success story of how wild plants can solve aromatics shortages. Discovered in 1958 in areas south of the Yangtze River and now widely grown, the *Litsea cubeba* bears fruit found to contain between 4 and 6 percent of volatile oil, which in turn is from 60 to 70 percent citral, an important material for making ionone.

"Only 108 kinds of known aromatic plants are currently being utilized," Liu said. "We shall try to seek ways to extract aromatics and essences from more of them."

In 1980, China's production of major natural aromatics and essences was shown in Table I.

According to plans under consideration, China will concentrate on the development of the following high-grade natural aromatics in the future: civet, *Michelia alba* oil and concrete, *Aglaia odorata* oil and concrete, *osmanthus* concrete, *citrus aurantium dai-dai* leaf oil, lemon oil, *Cinnamomum camphora* leaves oil and *Cananga odorata* oil. Of these, the last four will be given particular priority.

China prohibits the killing of perfume-secreting animals and has instead began to breed them to ensure an adequate supply. The zoo in Hangzhou, the provincial capital of Zhejiang, for example, now breeds civets and the southwestern province of Sichuan has a musk deer farm.

"But the production of civet cannot be increased rapidly, because they breed on meat and fish, which are rather expensive compared to the perfumes they produce," said Liu.

The synthesizing of aromatic chemicals is a comparatively new branch of the industry. Over

the past 30 years, however, many of the 280 aromatic chemicals produced in China have reached international standards of quality. Some of the most successful include synthetic musks and sandalidol, according to Feng Peiji, chief engineer at the Beijing General Factory of Daily-Use Chemicals. New products developed in recent years include ethylmaltol, linalool, melonaldehyde, Garlok musk (synthetic polycyclic type), *jasminum officinalis* concrete, lemonitrile, applester and sandalidol. In recent years, the Kunming Perfumery in Yunnan province has begun to produce ylang ylang oil, a super aromatic.

Figures for the 1980 production of major aromatic chemicals in China are shown in Table II.

China now exports aromatics to over 102 countries and regions, with natural varieties accounting for over 50 percent, according to Liu. Many traditional export items enjoy high prestige on the world market, such as peppermint camphor, *osmanthus* concrete, jasmine concrete, cassia bark oil, star anise oil, lemon oil, *Michelia alba* concrete, vetiver oil, *citrus aurantium* var. *amara* oil, vanillin, coumarin and heliotropin.

The great variety of both natural and synthetic fragrances makes China increasingly self-sufficient in terms of the number of aromatics needed in its production of compound essences, according to Feng.

Table I

<u>Name</u>	<u>Amount (tons)</u>
Peppermint camphor (Menthol ex <i>Arvensis</i>)	2139.50
Dementholised peppermint oil	1336.40
Spearmint oil	652.60
<i>Litsea cubeba</i> oil	576.60
Eucalyptus leaves oil	518.20
Orange oil	300.00
Patchouli oil	30.00
Vetiver oil	9.49
Labdanum concrete	8.80
Geranium oil	28.00
Jasmine concrete	1.319
lavender oil	5.08
<i>Citrus aurantium dai-dai</i> leaves oil	0.126
Clary sage oil	1.408
Rose oil	0.058
Civet	0.016
Citronella oil	1,000.0

Table II

<u>Name</u>	<u>Amount (tons)</u>
Benzyl alcohol	200.75
Benzyl carbinol	319.00
Terpineol	934.5
Rose alcohol	37.13
Sandalidol	176.5
Heliotropin	147.8
Citral	99.84
Linalool	72.62
Vanillin	817.87
Coumarin	344.67
Musk xylol	255.8
Musk ambrette	142.57
Benzyl acetate	327.00
Rose crystal	30.18

To meet domestic and export demands for aromatics and to improve quality, research work has been accelerated. Analysis of major natural essential oils began in 1978, according to Wu of the Botanical Institute; about 50 studies have already been completed.

A research symposium on volatile plant oils was held in April 1981 in Hangzhou. The 61 scientists attending the symposium decided to complete in 5 to 6 years a book on Chinese volatile plant oils as a starting point to help the industry set quality standards for its products.

The Ministry of Agriculture is also joining the effort.

"We neglected aromatic plants in the past," said Shun Maosu, director of the ministry's Second Office of Cash Crops. "But we'll catch up. We've urged local agricultural departments to take the development and utilization of aromatic plants as an important part of their effort to diversify the rural economy."

Shun is more profit-oriented than her colleagues in other government departments, with a particular view to the as yet undeveloped earning power of the peasantry.

"Our main concern," she said, "is to let peasants earn more money from the plants. In many backward areas, peasants are virtually surrounded by money-yielding aromatic plants. We must find ways to utilize as many of them as possible."

The growing demand for aromatics, particularly for those provided by nature's multitude of wild plants, could indeed bring prosperity in the not too distant future to peasants living on land that may not be suitable for crops but is overgrown with plants whose value even Jia Baoyu wouldn't have realized.