

# Emerging Markets, Supply Chain, Ingredients Take Center Stage at IFEAT 2012

Select highlights from the symposium of the International Federation of Essential Oils and Aroma Trades in Singapore.

Despite the interruptions caused by Hurricane Sandy in the Eastern United States, more than 1,000 delegates from 53 countries gathered in Singapore last November for the 2012 symposium of the International Federation of Essential Oils and Aroma Trades (IFEAT). Led by chairman Ravi Sangneria (Ultra International), the event speakers focused on labor and economic issues, regulatory concerns, new technologies, ingredients and, of course, emerging markets—particularly Asia-Pacific.

## China's F&F Boom: Remaking Markets and Ingredient Production

In 2005, China's flavor and fragrance industry comprised about 662 companies, according to Zhang Jingyuan (China Association of Fragrance, Flavor and Cosmetic Industries [CAFFCI]).

By 2012, that number had climbed to 1,000, underscoring the country's burgeoning domestic and multinational activities.

Twenty percent of the industry's sales are in fragrance, while 50% are in flavor; ingredients and other categories make up the remainder. The Chinese industry is experiencing annual growth of 15%, with annual sales estimated at about \$6 billion.

According to Jingyuan, about 1,869 flavoring materials can be used in the country. Meanwhile, CAFFCI has partnered with the International Fragrance Association, and is working with the Chinese State Food and Drug Administration to craft laws and regulations.

In the marketplace, China is expanding into new sales channels for products, including wholesale markets, department stores, specialty stores, professional markets, and business-to-business and business-to-consumer e-commerce. About 54% of sales come from the spa category.

**Anethole:** Of the 3,500–4,000 tons of anethole produced each year, about 80% is applied to oral care, 12% to foodstuffs (candy, liquor, beverages, chewing gum, etc.) and 8% to other categories (pesticides, feed additives, etc.), according to Huang Zongliang (Chengdu Jianzhong Flavors & Fragrances). Counting volumes of anise oil, total annual anethole volumes could be as high as 5,000 tons, Zongliang added. Production of star anise oil (*Illicium verum* Hook. f.; CAS# 68952-43-2; FEMA# 2096) is dominated by China, with lesser amounts produced in Vietnam and several other countries. Demand for anethole continues to grow.

Anethole can be derived from fennel oil, which contains 50–60% anethole; anise oil, which contains 80–90% anethole;



Enping Zheng (Fujian Green Pine Co. Ltd.), left, and Alain Frix (Renessenz); photos courtesy of IFEAT.

and star anise oil, which contains 80–90% anethole. Despite the promising yields, crop fluctuations, farming input costs and worker wages make natural anethole “cost-complicated,” said Zongliang. Meanwhile changes in the paper industry make crude sulfate turpentine (CST) supplies less available.

Anethole is chemically synthesized using acetylation, hydrogenation and dehydration reactions. These processes present a “cost-stable” means of production, according to Zongliang, which can be relatively easily scaled up.

**Gum turpentine oil and turpentine derivatives:** Similar production cost considerations are reshaping the turpentine category, explained Enping Zheng (Fujian Green Pine Co. Ltd.). China produces about 75% of the world's gum turpentine, primarily in Fujian, Yunnan, Guangdong, Guangxi and Jiangxi. Among the turpentine derivatives produced in the country are terpineol and pine oil (23%), camphor and camphene (26%), borneol flakes (5%), pinenes (19%), various aroma chemicals (14%), and terpene resin (11%). Two percent of turpentine is exported (source: China Rosin & Turpentine Derivatives Trade Association).

## Mark Your Calendar

IFEAT's next meeting will take place  
Sept. 29 to Oct. 3, 2013, in San Francisco.  
For more information, visit [www.ifeat.org](http://www.ifeat.org).



Zhang Jingyuan (China Association of Fragrance, Flavor and Cosmetic Industries); find more photos at [facebook.com/perfumerflavorist](https://www.facebook.com/perfumerflavorist).

The turpentine-derivative industry in China began in the 1950s, grew in the 1980s and boomed after 2000. Today, about 400,000 workers are involved in gum turpentine/gum rosin harvesting and production, according to Zheng. Traditional tree tapping is labor intensive, she noted. Most producers operate on a small scale, with only 60 plants in the country with a capacity of more than 10,000 tonnes a year. At the same time, labor costs keep rising.

While materials such as Lyral and dihydromyrcenol are produced overwhelmingly with terpenes, geraniol and citronellol are increasingly manufactured using petroleum derivatives, while citral and menthol are predominantly synthesized using petroleum materials. At the same time, gum turpentine has experienced overproduction and attendant price fluctuations. Regulatory issues have affected operational costs negatively, even as turpentine derivatives face competition from petrochemicals.

Zheng predicted that acquisitions and consolidation among producers will increase. Private investors will buy out pine forests and take control of CST supplies. As a result of consolidation, she predicted integration of processes and greater levels of innovation.

### India's Winners and Losers, Himalayan Ingredients

In the next evolution of the Indian F&F industry there will be as many winners as losers, said Sant Sangeneria (Ultra International). Today, multinational players in India include IFF, Givaudan, Firmenich, Mane, Robertet, Symrise and Takasago. Domestic players include Gogia Chemical Industries, Oriental Aromatics, S.H. Kelkar & Co., Sacheerome, Sonarome and Ultra International. The industry's market size breaks down approximately as follows, according to Sangeneria's figures:

- Mint: \$950 million (contribution of menthol to this category unspecified)
- Compounded flavors: \$100 million
- Compounded fragrances: \$400 million
- Aromatic chemicals: \$500 million
- Spices and oleoresins: \$300 million
- Other: \$200 million



Sant Sangeneria (Ultra International)

Depending on growth rates, by 2020 the Indian F&F market could be worth between \$980 million and \$1.5 billion. Under current projections, the F&F industry is expected to grow 1.5 times the rate of GDP, driven by rising incomes and consumer goods demands, an emerging market for premium products, and regulatory-driven replacement of low-grade chemicals with safer high-grade materials.

Leading categories for flavors and fragrances include household products (12%), food and beverage (53%), personal care (20%) and tobacco (15%). Demand for these and other fast-moving consumer goods (FMCG) will be 11–12%/year. Soap and cleansers will achieve approximately 10% growth each year.

Sangeneria stressed that the Indian industry will *not* mirror the global industry. Domestic players will be able to gain an edge on the competition through exploitation of indigenous ingredients, deeper understanding of local tastes and emerging trends, increased global integration, enhanced infrastructure, and more. At the same time, there will be increased competition from tier two and three multinationals due to liberalized trade policies. While there is resistance among Indian companies to the adoption of International Fragrance Association and International Organization of the Flavor Industry standards, the domestic players may be pushing that direction. This, said Sangeneria, is crucial for those Indian companies that want to go multinational.

**Ingredients of the Himalayas:** India's Himalayan region produces several significant natural materials, including Himalayan cedarwood oil, Himalayan juniper berry oil, Indian tagetes oil, Indian calamus oil, hedychium oil and valerian root oil, said Surender Mohan (Natural Biotech Products). Cedarwood oil is used as a fixative and diluent in soap perfumes, sanitary supplies and polishes. Indian calamus oil (*Acorus calamus*), produced at a volume of 4 tonnes in 2011, is used in flavors and liqueurs and to some extent in perfumery, though it is restricted by IFRA. Tagetes oil (*Tagetes minuta*) possesses a marigoldlike odor and is used in perfumes for apple and fruity effects and in bay rum hair lotions. Himalayan juniper berry oil is used for beverage and liquor flavors; terpeneless and sesquiterpeneless versions are used in flavors. Hedychium oil is used in fragrances for hair oils and soaps and some flavors. Finally, valerian is used in perfumery for woody, musk and balsamic notes, and in tobacco, beer and root beer flavor profiles.

## Threats to Indonesian Aromatic Ingredient Production

Indonesia exports \$230–250 million of essential oils and aroma chemicals each year, said Meika Syahbana Rusli (Bogor Agricultural University/Indonesian Essential Oil Council). Key products include:

- Turpentine
- Patchouli oil (as much as 1,400 metric tonnes; more than 90% of world volume)
- Clove leaf oil and its derivatives (as much as 4,800 metric tonnes; more than 70% of world volume)
- Nutmeg oil (as much as 380 metric tonnes; more than 90% of world volume)

Production of the some 50 commercially significant oils—including citronella, vetiver, ginger, cassia, kaffir lime leaves, gurjun, cajeput, cananga, cubeb, galangal, black pepper and lajagoa—provides jobs in this country, Rusli, noted. For example, each clove distillation site employs more than 50 workers.

Recently, the country's industry has faced challenges, including land being used for planting of commodity crops (palm oil, coffee, corn, rubber, sugar cane, etc.) in response to rising prices. In Sumatra alone, more than 50% of aromatic crop distilleries have disappeared over the past six years. At the same time, increased energy and labor costs, harvest failure and price fluctuations have contributed to income uncertainty. One of the keys to sustainability will be productivity improvements.

## Russian Domestic Landscape

Russia imports nearly 100% of its 500 tonnes of aroma chemicals each year, said Maria Novozhilova (Leko Style). Other exportable essential oils include 100 tonnes of Siberian fir needle oil, 4 tonnes of dill seed and weed oil, 50 tonnes of coriander seed oil, and 1 tonne of coriander weed oil. Minor essential oils produced in the country include 1 tonne of spruce oil, 2–3 tonnes of pine oil, 50 kg of juniper berry oil, 30 kg of blue chamomile oil, 5 kg of helichrysum oil and unknown amounts of mustard oil.

Russia has entered into a customs union between Belarus and Kazakhstan, forming what is essentially a single market. Twenty percent of consumers in this market live in urban areas. At the same time, Russia has joined the World Trade Organization, reducing customs duties for consumer goods, meaning local producers may lose the competitive edge. Mass market products comprise 80% of sales, while luxury/organic comprise 2%. Leading fragrance-containing segments include cosmetics, perfumery, liquid and solid soap, and household products. Leading flavor categories include ice cream, butter, tobacco, alcoholic beverages, juices and snacks.

Among the domestic F&F industry's growth challenges is a lack of qualified employees, poor image in customers' eyes and long lead times for ingredients (four to eight weeks from Europe, two to three months from China). However, advantages for local producers include lower cost of production, better understanding of local needs and short delivery time of compounded products.

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