

Kokumi: Unlocking the Secrets of Fullness and Richness

Not quite the “sixth taste,” kokumi nonetheless offers a pathway to formulate tastier low-in flavors

“Kokumi is a relatively new buzzword,” says Michael Peters, Givaudan’s director of global flavor creation technology. And, though kokumi—*ko*ku, meaning “rich” in Japanese, and *mi* meaning taste—is not a taste perception like sour or umami, the concept does encompass the mechanics of richness, complexity and fullness in food flavors.

Kokumi was first coined by Ajinomoto researchers about five years ago. The company has since defined the term as:

A Japanese word used to describe the rich, strong taste in food. Examples would be long-matured cheese, chicken soup prepared for many hours, or the taste of grandmother’s home-cooked style stews and pies.

Furthermore, Ajinomoto breaks down kokumi’s facets into three distinct elements:

1. Intensity of the five basic tastes over time
2. Growth of pleasant, long-lasting taste sensations
3. Harmony: the overall feeling of how well-balanced the flavor is

It is exactly this complex interaction that was at the center of Givaudan’s latest ChefsCouncil, which was held in Hong Kong and featured chefs Alex Atala (D.O.M. Restaurante, São Paulo), Jordi Roca (El Celler de Can Roca, Girona, Spain), Paul Virant (Vie Restaurant, Chicago) and Alvin Leung (Bo Innovation, Hong Kong).^a Participants discussed and experimented with umami and kokumi concepts, beginning with inventive haute cuisine from the guest chefs before progressing toward food concepts more conducive to product development. The resulting concepts can be applied to a range of food types, including chicken, beef, processed meats, vegetables, cheese and dairy. In addition, the knowledge gathered during the ChefsCouncil, according to the company, “will drive better knowledge-sharing between regions, ingredient development for Givaudan’s TasteSolutions program, and R&D into health and wellness.”^b

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^bTasteSolutions is a trademark of Givaudan.



Chef Jordi Roca of Girona, Spain’s El Celler de Can Roca prepared ventresca, or tuna belly, cooked at low temperature with fermented fish sauce; all photos courtesy of Givaudan.

Peters notes that making healthier foods necessarily means reducing or eliminating ingredients such as sugar, fat and salt. “That reduces the complexity of food flavors,” he says. “So we explore how we can build that back.” And so, gaining knowledge of the mechanisms behind kokumi may aid in the development of rich, full-flavored foods that don’t sacrifice on healthfulness. “It was the intention of this ChefsCouncil to determine what kokumi is and how to define it.”

Peters is quick to note that, despite its name, kokumi is a concept that has relevance beyond Asian cuisine:

“Is kokumi unique to specific regions? I think we can conclude it is not.” Instead, he says, kokumi represents “authenticity” in flavors and has implications for foods across the world.

In practical terms, the harmony, balance and richness of kokumi, as evidenced by Ajinomoto’s definition, are generated through a complex interaction of ingredients and preparation techniques. Peters acknowledges that, although kokumi is most readily applicable to savory applications, “If you do a bit of research, the term *kokumi* was first applied to fermented food products like sake.” An aged, full-bodied red wine, too, fulfills the promise of kokumi.

Ingredients such as proteins; carbohydrates; vegetables; fermented foods, including dairy products such as sour cream; and Parmesan cheese can all contribute to kokumi-building in flavor systems. Meanwhile, cooking techniques such as braising meat, slow cooking stocks, roasting, curing, drying, fermenting and aging can further build kokumi-boosting complexity.

These types of techniques and ingredients, presented both in haute cuisine and product development contexts, were the subject of this year’s ChefsCouncil.

“We always try to go to places that are relevant to the world of food,” says Peters of the event’s location. “Hong Kong is a culinary center in Asia for different cuisines from all over the region.” The focus on Asia also makes sense as the market gains dominance in the flavor and fragrance industry. In the third quarter of 2010, the latest financial period on record, Givaudan posted a sales increase of 9.3% (local currencies) in Asia-Pacific. Results were driven by growth in snacks, sweet goods and beverages. And, for full-year 2009, the company reported that 41% of its sales were generated in developing markets, led by Asia-Pacific.

Givaudan brought its research chefs, flavorists and other experts to this culinary and economic hot spot to exchange insights from top-tier chefs from four key regions of the world. “We had a good dialog going on,” says Peters. “The mission here is to gain culinary inspiration, which can help drive our scientists and flavorists to develop flavors that are inspired by the artistic side, and translate it into flavor systems.”

Each chef brought a unique point of view to the event. Roca, for example, employs leading-edge culinary techniques such as molecular gastronomy to traditional Spanish cuisine. Virant focuses on seasonal contemporary American fare, local produce, seasonal ingredients and preserved foods. Leung produces “extreme,” innovative Chinese cuisine. Finally, Atala focuses on local ingredients from the Amazonian region.

Each participant explored umami and kokumi in their own ways, producing dishes that heightened both facets. Virant, for example, used a 28-day-aged skirt steak. The aging process allowed the dish to develop a deeper, stronger flavor than conventional beef. His fried beef confit (**pictured**) involved suet, salt, pepper, thyme, sage, rosemary, bay leaves, garlic and short ribs. The deboned ribs were allowed to rest for two days to develop flavor.



A beef confit created by chef Paul Virant (VIE) included suet, salt, pepper, thyme, sage, rosemary, bay leaves and deboned garlic short ribs.



Chef Paul Virant (right) of Chicago’s Vie and Givaudan’s Cincinnati-based chef Stefan Strehler prepare charcuterie.



Chef Alex Atala, of Sao Paulo's Restaurant D.O.M. in Sao Paulo, Brazil discussing umami and kokumi.



▲ *Givaudan chef Thomas Chai, investigating market samples.*



◀ *Chef Jordi Roca of Girona, Spain's El Celler de Can Roca, tasting one of his preparations.*

Roca's tuna belly (**pictured**), or ventresca, was cooked with a fermented fish sauce called garum. The dish required that the fatty tuna be brined in salt water then vacuum packed and cooked with the umami-rich garum until its collagen melted. The cook juice was then emulsified with olive oil and sauced over the fish.

These and other processes, says Peters, created "explosions of flavor."

"You need to understand the complexity you're creating and what creates mouthfeel," he concludes. These effects, he says, will help flavor chemists and product developers create more authentic flavors for markets around the world, in addition to more palatable "low-in" products with improved mouthfeel.

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