

# The Magic of Umami

## By Dan Gill, Ethno-gastronomist

We started making She-Crab soup last summer and it has become so popular that it is now our main soup. The basic recipe came from the now defunct *Betsy Ross* restaurant near West Point, known far and wide for their She-Crab soup. Customers often asked for the recipe but the staff never gave it out. Then a friend of ours asked a new waiter for it and he said, "sure, it's written on the wall in the kitchen!" We have changed it somewhat: We added real crab roe to make it authentic "she crab", increased the sherry and dropped the MSG. I personally never use MSG, but, during testing, the soup definitely lacked something without it. I wanted to know why and what natural ingredients I could use to get the same result, so I started researching.

Until recently, we in the Western World were aware of only four tastes: sweet, sour, bitter, and salty. For hundreds of years, the Japanese have recognized a fifth separate and distinct flavor component, which they call umami (pronounced oo-MOM-ee). The closest translation is savoriness, meatiness or deliciousness, but umami also connotes a sense of comfort and well-being. Umami is concentrated in a certain kelp, called Kombu, which grows in the cold waters off of Northern Japan. Kombu is the basis of a number of dishes, notably "dashi", a savory soup stock used extensively in Japanese cuisine. The umami effect in dashi is multiplied by the addition of a few flakes of dried bonito. About a century ago, a Japanese biochemist, Kikunae Ikeda, set about discovering the source of goodness in his wives' dashi. He found that it was extremely high in natural glutamates or salts of glutamic acid; a common amino acid found in most proteins. In its' free form, not attached to protein, glutamates interact with other components to produce a meaty, savory quality in foods. Professor Ikeda found a way to manufacture glutamic acid and combine it with sodium to form a stable salt known as Monosodium glutamate or MSG. He patented his new discovery, which he called Aji-no-moto or "essence of taste" and founded a company of the same name to manufacture it. It became immensely popular in the Orient and the professor became a phenomenally wealthy national hero. Following World War II, the popularity of MSG spread to the US as returning servicemen brought back an appreciation of its' magic effect on bland foods. As Americans relied more on processed and fast foods, a huge and sophisticated industry evolved to engineer and formulate complex combinations of natural and manufactured "flavor enhancers" in an attempt to make packaged foods taste good. It was discovered that salt and two nucleotides (inosinate and guanylate), components of DNA, multiply the umami effect of glutamates up to eight fold. Remember the bonito flakes in kombu dashi? Dried bonito is high in inosinate. Balanced umami combinations not only taste good, they stimulate pleasure centers and make us feel good: Consumers subconsciously seek out umami, a phenomenon that explains the importance of the flavor industry to the processed and fast food industries.

Without knowing it, we have learned to appreciate umami from birth. Mothers' milk is ten times as high in glutamates as cows' milk. A freshly picked ripe tomato, warmed by

the sun, is high in natural umami, which is intensified by a sprinkle of salt. Fish sauce, Worcestershire sauce, oyster sauce and tomato ketchup all owe their appeal to umami. Scientists have recently confirmed that umami really is a bona-fide fifth taste, complete with taste buds (receptors).

All was well until some consumers noticed that they experienced headaches and other reactions after eating in Oriental restaurants and suspected that high levels of MSG was the most likely cause. "Chinese restaurant syndrome" (CRS) resulted in years of research on the safety of processed glutamates. All governments and agencies now classify MSG as "generally recognized as safe", but consumer concerns and complaints persist. The food industry responded by camouflaging glutamates in ingredient labels as "hydrolyzed protein", "yeast extracts", "natural flavors" and "artificial flavors". Some people are apparently sensitive to "processed" glutamates, but not natural glutamates. The glutamate industry claims that there is no effective difference, but actually, glutamic molecules can exist as two optical isomers; the same atoms arranged as mirror images like left and right hand gloves. Natural glutamates are of the left orientation; processed glutamates are a racemic mix of left and right plus a few inevitable contaminants.

Most foods contain glutamic acid bound in long protein molecules, and therefore not available to umami taste receptors. Bound glutamic acid is released in the digestive process and is absorbed as a nutrient but does not contribute much to flavor. Foods are therefore manipulated to hydrolyze protein, free the glutamates and unlock umami. Slow cooking, fermentation and the aging of meats and cheeses are all processes that break down protein and release free glutamates. Roquefort and Parmesan cheese are extremely high in free glutamates, which accounts for their magic effect on bland foods even in small quantities. Aged beef, country ham and salt herring all acquire their unique flavors through the same process. Soy sauce, Worcestershire, fish sauce and oyster sauce are all high in glutamates released through fermentation and aging. Slow cooking, especially smoking and traditional barbecue methods increase umami naturally. Processed versions of "comfort foods" are anything but slow and have to rely on an arsenal of additives to simulate natural umami. What's in your chicken noodle soup? This is why chefs make their own stocks and reduction sauces and why "slow foods" have such universal appeal. At "Something Different", we have been practicing "umami art" all along without knowing it!

As a result of umami awareness, our She-Crab soup now contains only natural ingredients (notably kelp powder): and is even better than the original! Flavors are deeper, more balanced and linger on the palette long after the last spoonful. Come on by "Something Different": We specialize in umami, au naturel.

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