

South African

FOOD REVIEW

www.foodreview.co.za

Journal for food and beverage manufacturers

SEPTEMBER 2013 • Volume 40 • Number 9

Breaking news on food safety

GMO's raging
debate continues

The misaligned
myths of MSG



18 - 20 September 2013

Sandton Convention Centre
Johannesburg • South Africa

A Montgomery event

**Official
Catalogue**

See pages 31 to 43

The MSG myth

Monosodium glutamate (MSG) is the sodium salt of the common amino acid glutamic acid that's naturally present in our bodies and in many food and food additives.

MSG occurs naturally in ingredients such as hydrolysed vegetable protein, autolysed yeast, hydrolysed yeast, yeast extract, soy extracts and protein isolate, as well as in tomatoes and cheese. Parmesan, with 1 200mg per 100g, contains more free glutamate than any other natural foodstuff. Marmite, with 176mg per 100g, has more glutamate in it than any other manufactured product, labelled as 'yeast extract'.

Essence of taste

In 1908, Prof Kikunae Ikeda from the physics faculty of the Tokyo Imperial University was able to extract glutamate from a seaweed broth and determined that glutamate provided the savoury – or umami – taste to the soup. Prof Ikeda filed a patent to produce MSG and commercial production of a table condiment called

Aji-no-moto (essence of taste) started the following year. In 1936, Prof Ikeda died a wealthy man. Today, the food chemicals giant Ajinomoto Corp, now owned by General Foods, produces the majority of the over 1.5 million tonnes of MSG that's consumed every year.

“
Glutamate makes things tastier by stimulating nerve receptors in the taste buds
”

Development of MSG has evolved and today it's produced by the fermentation of starch, sugar beets, sugar cane or molasses. This fermentation process

is similar to that used to make yoghurt, vinegar and wine. It's a simple substance, a salt of glutamic acid which is present in many foodstuffs, including mothers' milk (at least 10 times the levels present in cow's milk). Glutamate makes things tastier by stimulating nerve receptors in the taste buds: arguably, some say, why it's present in breast milk, which, along with the sugar lactose, encourages babies to eat more. The same thing happens when MSG is added to other food products, such as strong cheese, cured meat, cooked tomatoes or soy sauce.

Glutamate and its analogues appear to work on quite separate receptors from those excited by other chemicals, and neuroscientists have recently decided that the taste is a unique, fundamental one that cannot be covered under 'savoury' or 'tangy'. Prof Ikeda gave it its poetic name: umami or deliciousness. It takes a place alongside sweet, bitter, salty and sour in the basic palette that our tongues can detect. It's become the well-known fifth taste.

Bad rap

Although considered 'generally recognised as safe' (GRAS) by the US Food and Drug Administration, one man's opinion gave MSG a bad rap that it's been unable to shake for decades. Fear of MSG began with a 1968 *New England Journal of Medicine* paper by Dr Ho Man Kwok identifying 'Chinese restaurant syndrome'. Reports of studies by Dr John Olney at Washington University followed, showing that mice injected with vast amounts of MSG developed brain lesions and panic spread. This has left a legacy of people qualifying themselves to be MSG, but scientists haven't been able to conclusively identify consistent trigger reactions and many believe the symptoms are the result of the so-called 'placebo effect' (a person suffers the symptoms they've been told about whether or not they ingest the 'culprit').



Highly unlikely

In the 1990s, the Federation of American Societies for Experimental Biology (FASEB) identified some short term, transient, and generally mild symptoms, such as headache, numbness, flushing, tingling, palpitations and drowsiness that may occur in some sensitive individuals who consume three grams or more of MSG without food. However, a typical serving of a food with added MSG contains less than 0.5 grams of MSG. Consuming more than three grams of MSG without food at one time is highly unlikely.

In fact, it may do some good. MSG manufacturers are now pushing it as actively useful for health as it's a way of being able to reduce sodium in food. Many celebrity chefs have been enlisted to promote the umami principles, including Heston Blumenthal, whose restaurant The Fat Duck in Bray, UK, was once voted the world's best.

The glutamate in MSG is chemically indistinguishable from glutamate present in food proteins and the human body metabolises both sources in the same way. An average adult consumes approximately 13 grams of glutamate each day from the protein in food, while intake of added MSG is estimates at around 0.55 grams per day. It's been 37 years since Dr Ho Man Kwok named Chinese restaurant syndrome and its plain that the case against MSG remains unproven.

MSG crystals

According to Li Xuechun, chairman of the Fufeng Group, a company that grew big enough to list on the Hong Kong stock exchange thanks to sales of MSG, Chinese people consume over 1.8 million tonnes of MSG crystals every year, yet you certainly don't hear many complaints about MSG allergy

Natural glutamate content of food (mg per 100g)

Roquefort cheese	1 280
Parmesan cheese	1 200
Soy sauce	1 090
Walnuts	658
Fresh tomato juice	260
Grape juice	258
Peas	200
Mushrooms	180
Broccoli	176
Tomatoes	140
Oysters	137
Corn	130
Potatoes	102
Chicken	44
Mackerel	36
Beef	33
Eggs	23
Breast milk	22

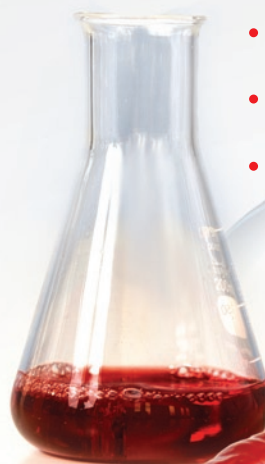


among them. Unfortunately, there remains a body of respected nutritionists who are sure MSG causes problems – especially in children. And parent's listen. □

Ajinomoto Corp – www.ajinomoto.com
Fufeng Group – www.fufeng-group.com

A&D Food Ingredients cc.

SPICE EXTRACTS



- Oleo-Resins
- Essential Oils
- Phyto-Nutrients

Manufactured by:

akay

www.adprodukte.co.za

Tel 011 314 2258 | Cell 076 687 0083

Fax 011 314 4725 | info@adprodukte.co.za