

UMAMI TASTE AND THE CONSUMER PERCEPTION

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Abstract

Umami the fifth basic taste is present in a lot of food products of vegetal and animal origin. The presence of this taste may be perceived or not, depending on the attitude towards food, on experience, age, the type of food usually consumed and other factors. The study was conducted to find out if consumers living in south and south-east of Romania function of their food habits can link the taste of some foods which contain umami components to this new taste. The age and the food habits are the most important factors which affect the umami taste perception.

Keywords: Umami, monosodium glutamate, food consumer, food habits, pleasure of eating

Rezumat

Umami al cincilea gust de bază este prezent în multe produse de origine vegetală sau animală. Prezența acestui gust poate fi percepută sau nu, depinzând de atitudinea consumatorilor față de produse, experiența lor alimentară, vârsta, tipul de produse consumate de obicei și alți factori. Acest studiu a fost realizat astfel încât să identifice dacă, consumatori din sudul și sud – estul României, în funcție de obiceiurile lor alimentare pot face legătura între o serie de produse care conțin compuși umami și acest nou gust. Vârsta și obiceiurile alimentare sunt factorii cei mai importanți care sunt legați de perceperea gustului umami.

1. Introduction

This study was generated by an article published in a Romanian weekly news paper (Saptamana financiara / 11.01.2008) at the beginning of this year. The title of the article was: „The fifth element: savoury – Sour, salty, sweet and bitter. From 2007 umami joined the four basic tastes”. In fact the Japanese have used it in their cuisine for more than 1000 years. The soup stock or „dashi” is the oldest umami representative product. Dashi is an all – purpose soup stock that is usually made from katsoubushi (dried bonito) and kombu used first in Japanese cuisine to add umami taste to almost all boiled dishes (Miselman, 2000).

In 1825, (two months before his death) Jean Antheleme Brillat-Savarin published The

Physiology of Taste. „Tell me what you eat, and I tell you what you are” is the message of the gastronomers’ sacred book to gastronomers. He introduced the term „meaty” which can be described as „toothsome” previewing the Japanese umami. Also Savarin said that „The future of gastronomy belongs to chemistry”. He predicted what was going happen in 1908 when Dr. Kikunae Ikeda of Tokyo Imperial University reported that Kombu (a type of seaweed) produced a good taste.

Dr. Ikeda called this flavour „umami” in Japanese which is best translated as "delicious." His experiments demonstrated that the monosodium glutamate is responsible for this delicious taste and in the same time he invented a method of obtaining crystalline monosodium glutamate, the flavour in its purest form.

Under request of Kikunae Ikeda the production of monosodium glutamate (MSG) was carried out by Saburotsuke Suzuki, the founder of Ajinomoto Co., Inc. The products sold under the Ajinomoto name are popular all over the world.

Studies conducted on vegetal and animal products demonstrated that MSG is present in many of them, adding taste and body to the products. Tomatoes, carrots, potatoes, mushrooms, Parmesan cheese, beef are just some of the products with umami potential (Jacqueline, 2005).

The umami officially becomes the fifth taste and the studies were extended at chemical, biochemical neurological (Araujo, 2003) and physiological levels. MSG, present in natural form in all foods is “peaceful” and has a very good taste potential. But the MSG obtained by synthesis can generate the Chinese Restaurant Syndrome (CRS) which can affect a large part of the consumers.

This is why the request for new sources which can assure the delicious taste of food and also the health, pleasure and safety. And these sources may be near us, we have only to identify them.

2. Materials and Methods

During the last few years the supply of information has greatly increased in food chain, consumers’ needs, attitudes, pleasure. The study was developed according to a plan established by Kotler, (1999):

- Defining the problem and research objectives;
- Developing the research plan;
- Implementing the research plan;
- Interpreting and reporting the findings.

The problem is to identify if the consumers can perceive the umami taste, present in some selected food, usually consumed in the context of living area, gender, food habits and the understanding of food “messages”.

The research was made on a naive consumers group (90 %) and 10 % consumers who know and understand the umami taste. The consumers were selected from south and south-east of Romania. The number of respondents who participated in this test was 145:138 from urban areas and 7 country sides, respectively 38 males and 107 females (figure 1)

The occupational area covered a large and equilibrated domain: engineers, some of them having food processing studies, students in food sciences (BsC), economists, biologists (most of them working with vegetal products and aromatic plants),

doctors and university professors (figure 2). Other categories include advocates, journalists, IT, designers, drivers, mechanical workers, technicians, chemists, workers in aromatic plant field and food supplement packaging.

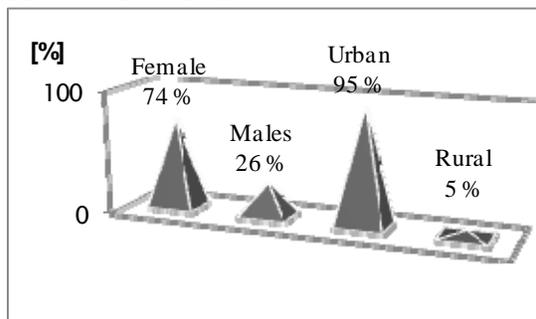


Figure 1. The gender and living area of respondents [percent]

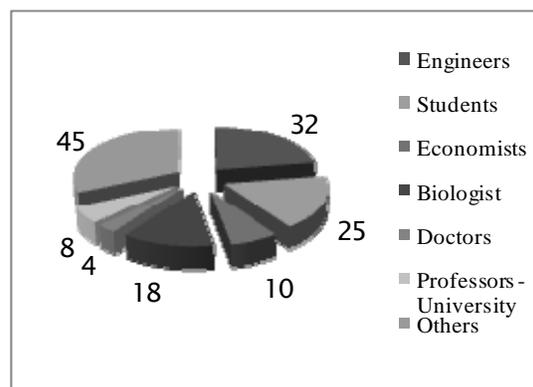


Figure 2. The occupational area of respondents [number of respondents]

The test participants’ age also covered the entire spectrum of people who can decide on food choice (figure 3).

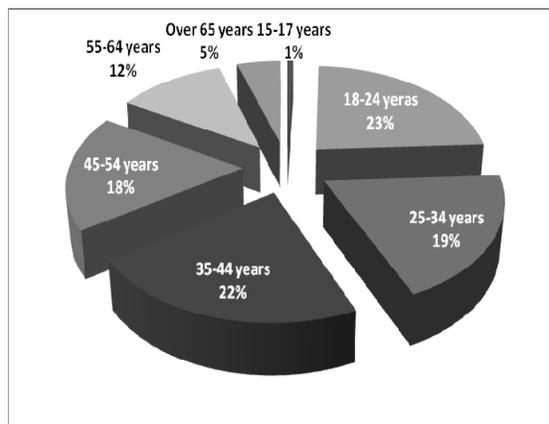


Figure 3. The repartition of the age of respondents [%]

The questionnaire contained 12 questions, 4 to characterize the group, 5 to identify the food habits and attitude towards food, and 3 to evaluate the perception of the „delicious” taste in frequently consumed food. The questions were closed-end type with multiple choices.

3. Results and Discussion

The answers to the first set of questions demonstrated that the group had a diet balanced in products of animal origin and vegetal origin (figure 4), and preferred a moderate amount of aromatic plants (dill, thyme, parsley, laurus) and spices (pepper, paprika, chilly) to be used in their dishes (table 1).

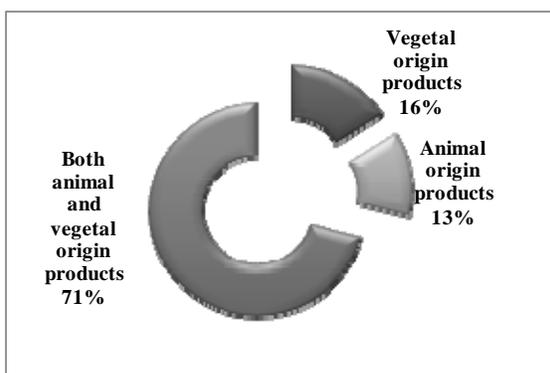


Figure 4. The tipe of product that consumers eat usually

The human body is set up for appetite-hunger-satiety. Do you usually eat when you are hungry strictly or do you eat for pleasure? Of course it exist the possibility to eat sometimes for pleasure (figure 5).

Table 1. The type of products with aromatic plants and spices which they prefer.

	More aroma/spices [%]	Medium aroma/spices [%]	Less aroma/spices [%]
Aromatic	21	70	8
Spices	15	70	15

Next question regarded the type of taste which the respondents preferred the most. They also had the possibility to nominate two tastes, because usually we consume the well known tastes in combinations not individually. Only 8 % preferred the bitter taste which is not a daily taste in our products consumption. They liked the sweet and salty tastes

the most. The sour taste was less appreciated and usually by the young people.

Only one of the respondents said that he preferred to eat for pleasure when he wanted to feel the pleasure of eating.

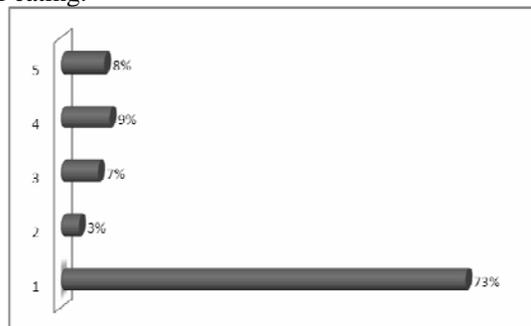


Figure 5. The attitude towards food
 1- eat only when I am hungry, 2- eat for pleasure at breakfast, 3- eat for pleasure at lunch, 4- eat for pleasure at dinner, 5- eat for pleasure at week-end

The second part of the questionnaire presented some products with different MSG content. More of them are consumed daily, some once a week, some never. The food products which are usually consumed with different frequencies are presented in table 2.

Table 2. The frequency of eating the products with different intensities of umami taste [% of the respondents]

Products	Daily	Twice a week	Once a week	Monthly	Less than once a week	I don't eat this product
Tomatoes	58	28	10	1	1	2
Carrots	20	34	33	8	3	2
Onion	35	32	19	6	4	4
Pepper	33	32	16	9	5	5
Potatoes	23	41	20	8	5	3
Spinach	0	4	8	17	41	29
Peas	0	10	10	32	34	13
Mushrooms	0	10	21	32	24	12
Broccoli	1	2	3	9	31	54
Milk	39	25	17	3	7	9
Parmesan	28	17	10	6	1	29
Cod	2	8	12	21	25	33
Somon	0	2	8	17	33	43
Makerel	1	5	13	32	29	19
Sardines	0	2	8	19	33	38
Sea food	0	1	4	10	26	59
Eggs	8	49	23	10	5	4
Cicken	34	45	12	4	2	2
Beef	6	23	25	22	10	14
Pork	7	21	16	31	13	12
Duck	0	1	1	9	39	49

Tomatoes (which are representative for umami taste) are consumed daily by more than a half of the consumers. They also consume onion, pepper and milk in different percentages every day. Broccoli, Parmesan, cod, salmon, sardines, sea food, duck meat which have also a good umami potential are products which are completely missing from the dishes of the respondents.

The study is completed with the next question linked to the previous one.

The respondents had to say if they could identify another taste besides the four basic tastes and which products induced this new taste. The results are presented in figure 6.

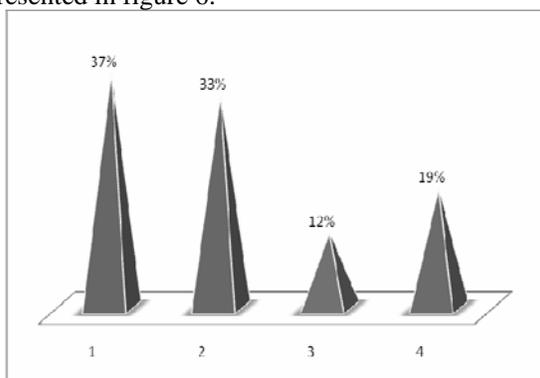


Figure 6. The percentage of another taste identification in products from table 3 (1- yes all of them; 2-No; 3- Some; 4-I don't know)

A proportion of 58% consumers used taste enhancers for some foods, 23% didn't use taste enhancers at all and 19% used them for all food products.

4. Conclusions

The respondents demonstrate that both people from urban and rural area usually consume animal and vegetal products with moderate amounts of aromatics and spices.

The consumers in the South and South east of Romania especially eat to diminish hunger and they eat less for pleasure.

The consumers in the South and South-East Romania use in their diets only some products from the entire list of food with umami components.

Even they consume such products which can induce the umami taste, only 37% are able to identify this new taste. This percentage is small regarding the possibility to identify the fifth basic taste; they even use taste enhancers which can define the umami taste.

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