

THE ROMANIAN CONSUMER PERCEPTION ON THE BENINCASA HISPIDA FRUIT

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Abstract

Benincasa hispida, also known as winter melon or ash gourd can be considered an exotic plant on the Romanian market. Its waxy aspect and special taste are not common among the vegetables traded in our country and introducing it in the eating behaviour of population can be difficult. The paper presents the main results of a questionnaire based survey regarding the consumer perception on the smell, taste and texture of the *B. hispida* fruit. The fruits tested were obtained during a field research carried out in an organic experimental field from south of Romania (in the period May-October 2012). In our approach to present the links between the perceptions of consumer, medicinal proprieties of the fruit and price, we have concluded that this plant can be accepted by the Romanian consumer if the marketing strategies are concentrated on the promotion of its curative proprieties.

Key words: consumer perception, *Benincasa Hispida* Fruit, survey

INTRODUCTION

Benincasa Hispida (Thunb.), Cogn. syns. *B. cerifera* Savi is a vegetable widely grown in East and South Asia, with a very large fruit which by maturity loses its hairs and develops a waxy coating. The plant is known under different names: Eng. - ash gourd, wax gourd, white gourd, white pumpkin, winter melon, watermelon; San. – Kusmandah; Hin. – Petha, Raksa; Chin. – tung kua; Span. – calabaza china or calabaza blanca.

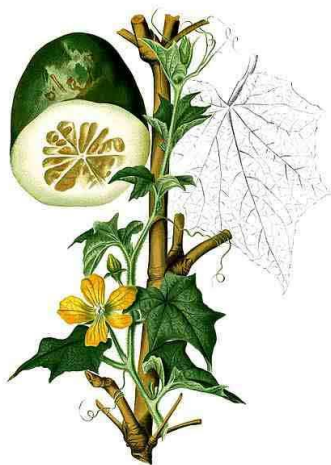


Photo 1. *Benincasa Hispida* (*Flora de Filipinas, Gran edicion, Atlas*) [1]

In the present, the ash gourd fruit is used due to its proprieties (anti-inflammatory, demulcent, diuretic, expectorant, febrifuge, laxative and tonic, etc) in traditional medicine and due to its taste and texture is widely used in Japanese, Chinese, Indian, Indonesian, vegetarian, dietary and vegan cuisine. The main markets for the ash gourd are located in China, India, Canada and United States where there already exists a positive perception over this vegetable.

In Romania, this vegetable is not marketed for different reasons: it isn't known; the consumer is not used to its taste; the import price is very high because the main producers are in India and China (for example the producer price per kg in India is 0.28 euro, the market price is 0.52 euro, and in United States the FOB price reaches 1.4 euro (1.85\$)).

To promote this product in our country in an efficient way is very difficult. In these conditions the main step is to connect the characteristics of the product with the perceptions and behavior of consumers [2]. This will permit to identify which attributes of the evaluated product are more important for

consumer: flavor, taste, smell, form, price or medicinal proprieties, etc.

MATERIALS AND METHODS

The present paper contains the results of a survey regarding the Romanian consumer perception of Benincasa Hispida (ash gourd) fruit and presents the links between the perceptions of the consumer, medicinal proprieties of the fruit and price. The fruits tested were obtained during a field research experiment regarding the growth of this plant in an organic field from south of Romania (in the period May-October 2012). The data were analyzed with descriptive statistic methods using the IBM SPSS Statistics 20.0.

RESULTS AND DISCUSSIONS

The main characteristic of the Benincasa Hispida fruit

The fruits obtained in the experiment field during the May-October 2012 were analysed by ICA Research and Development Laboratory and the main results for 100 grams of fruit are: Vitamin C 1 – 13.03 mg, Calcium – 19.02 mg, Magnesium – 10 mg, Phosphorus – 19.02 mg, Potassium – 5.98 mg, Zinc – 0.6 mg, Selenium – 0.23 mg, Iron – 0.38 mg, Total Omega-6 fatty acids – 87.1 mg, Calories – 17.2 kcal.



Photo 2. Benincasa Hispida fruit (obtained by field experiment)

We also wanted to specify that the specialized literature mentions that the fruit can be preserved in dry cool atmosphere for 6 to 12

months [3]. We tested this characteristic and our experiments shown that the fruit has to be stored at over 20 C° temperature to resist over 5 months.

In literature the Benincasa hispida fruit is considered astringent, anthelmintic, aphrodisiac, demulcent, diuretic, febrifuge, styptic, tonic, nutritive, tonic, diuretic, alterative, and styptic. Also, different studies consider this fruit to be anti-ulcer, antioxidant, gastroprotective, anti-obesity, renoprotective etc. and that it has bronchodilator, hypoglycaemic, anti-angiogenic, anti-urolithiatic and hepatoprotective effects [4].

The main results of the survey

Our questionnaires had a number of 11 questions organized in three sections:

-First section – the characteristics of respondents;

-Second section – the perception over the organoleptic characteristics of the Benincasa Hispida fruit;

-Third section - the links between consumer, price and medicinal proprieties.

Section 1. Characteristics of respondents and non-respondents for our survey study are (Table 1):

-35 completed the questionnaires;

-57.1% are between 25 and 45 years of age;

-57.1% are women;

-68.6% are residents of urban areas.

Table 1. Characteristics of respondents

	Frequencies	Percent
Under 25 years	8	22.9
25-45 years	20	57.1
Over 45 years	7	20.0
Age - total	35	100.0
Male	15	42.9
Female	20	57.1
Gender - total	35	100.0
Urban	24	68.6
Rural	11	31.4
Residence - total	35	100.0

Section 2. Our respondents considered that Benincasa Hispida: is a vegetable (68.6%); has a flavour similar to cucumber (48.6%) or raw yellow melon (25.7%); is similar in shape with a melon (60.0%); has a scent similar to cucumber (57.1%); has a texture similar to yellow melon (25.7%), watermelon (17.1%) or zucchini (17.1%).

The main words associated with the product were: has no taste – 17.1%; is refreshing - 11.4%; is special or different – 11.4%; is watery – 11.4%.

Table 2. Frequencies of responses

	Frequencies	Percent
What do you think is what you just tasted?		
Fruit	11	31.4
Vegetable	24	68.6
What fruit or vegetable would you associate it taste-wise?		
Zucchini	3	8.6
Pear	1	2.9
Raw watermelon	5	14.3
Cucumber	17	48.6
Pumpkin	2	5.7
Immature yellow melon	4	11.4
Radish	1	2.9
Turnip	1	2.9
Cactus	1	2.9
What fruit or vegetable would you associate it by exterior aspect?		
Zucchini	5	14.3
Watermelon	21	60.0
Cucumber	1	2.9
Pumpkin	5	14.3
Yellow melon	3	8.6
What fruit or vegetable would you associate it smell-wise?		
Zucchini	6	17.1
Raw watermelon	4	11.4
Cucumber	20	57.1
Pumpkin	2	5.7
Immature yellow melon	1	2.9
What fruit or vegetable would you associate it texture-wise?		
Zucchini	6	17.1
Pineapple	2	5.7
Raw watermelon	6	17.1
Cucumber	2	5.7
Pumpkin	5	14.3
Immature yellow melon	9	25.7
Turnip	2	5.7
Pear	1	2.9
If you were to describe it in one word, what would it be?		
Tasteless	6	17.1
Odd	1	2.9
Tasty	1	2.9
Bitter	1	2.9
Raw	3	8.6
Refreshing	4	11.4
Vapid	2	5.7
Watery	4	11.4
Succulent	1	2.9
Special/Different	4	11.4
Exotic	3	8.6
Interesting	3	8.6
What do you think of this product?		
Don't like it	4	11.4
Reasonable	4	11.4
Interesting	11	31.4
Good	9	25.7
Very good	7	20.0
For what kind / types of food do you think is suitable for consumption?		
Raw - Salads	20	57.1
Cooked - baked, boiled	4	11.4
Raw or cooked	5	14.3
I don't know	3	8.6

Regarding the general perception over the product, the majority of the respondents considered that it's interesting (31.4%) and good (25.7%). Only 11.4% responded that they didn't like the product. Also, 57.1% considered that the product can be consumed in raw form, in salads, and 11.4% only cooked.

Section 3. Because of its exotic flavour and aspect, the majority of respondents considered that they would consume this fruit, but due to its high price, only 65.7% said that they would buy the product.

Table 3. Frequencies of responses

	Frequencies	Percent
Do you think you would buy this product?		
Yes	26	74.3
No	9	25.7
Would you be willing to pay between 4-8 Lei / kg?		
Yes	23	65.7
No	12	34.3
If you were to know that the product contains medicinal properties (low sugar) would you purchase it regardless of price?		
Yes	30	85.7
No	5	14.3

Nevertheless, even the persons that considered the price to be too high, after reading the medicinal proprieties of the plant, they changed their mind. In these conditions, 85.7% of respondents decided that they would buy the product for his medicinal proprieties. If we match our responses with the international studies [3] we may observe that our respondents:

- Are not the only ones that considered this fruit to have no taste when it's fresh (Dr. L. H. Bailey: "I have been unable to relish the fruit when uncooked" – 1894);
 - Assimilated the fruit with cucumber and propose the main use in fresh salads (in France and Indochina this fruit is considered "more digestible that the cucumber");
 - Proposed to use this fruit like a vegetable and to be cooked (in many countries this fruit is considered a vegetable and is used in boiled meals, fresh juice, soups and sweets).
- Actually "Because of its smooth texture and very mild flavor, the cooked ash gourd can be utilized to modify or stretch any strong-flavored vegetable or fruit such as the turnip, cranberry or rhubarb. Weight-watchers may find this low-calorie fruit vegetable pleasing

as a stomach-filler to help them resist more fattening foods. Gourmets may develop recipes for preparing sour, spiced or peppery-hot pickles from this versatile material”.

We also want to underline the therapeutic value of this plant [3]: the seeds – demulcent, tonic, prevent hunger; the ash – for wounds, candles; the fruit juice – nervous diseases, mercurial poisoning, hemorrhoids; the flesh of fruit – laxative, diuretic, aphrodisiac, etc.

CONCLUSIONS

Benincasa Hispida is a plant resistant to drought, rich in chemical and physical proprieties, suitable for organic agriculture and with a long period of possible storage.

Our survey regarding the perception of consumers on this fruit shows that with a proper promotion this product can be introduced in the Romanian consumers behaviour.

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