Quality Properties of the Head Rice in Some Domestic and Introduced Rice Varieties

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1. Introduction

Rice is one of the most important cereal grains in the world and it is staple food source for half of the world's population. This research analyzes some quality properties of the head rice yield in some domestic and introduced rice varieties.Rice has a long-standing breeding tradition in the Republic of Macedonia, especially in the eastern region, along the Bregalnica river.Rice belongs to the grass family Poaceae, the subfamily Bambusoideae, the genus Oryza. So far, there have been about 25 species of the aforementioned genus. However, only two species are used for cultivation- Oryza sativa L. and Oryza glaberrima, while the rest are wild species.

2. Experimental Setup

The purpose of this research is to study some quality properties of the rice (Oryza sativa L.).They are: yield (French rendement) (the proportion of a valuable substance obtainable from a particular crude material), the absolute mass of the grains, the chemical composition of the grains, the humidity, and the by- products. This research covers 5 varieties of rice: Prima riska (st.), San Andrea (st.), Mesen Blatec, Monticelli, Onice.We examined the rice properties with the following instruments and procedures: rice peeling machine, analytical balance, the Kjeldahl method, and moisture meter.

3. Results

When processing rough rice (paddy rice), several categories of rice are obtained: brown rice ,white(milled) rice, chalky rice(grains) and the by- products: rice bran, broken rice and rice hulls.

On the basis of the obtained results (Figure 1), it can be seen that the best yield was obtained in the Monticelli variety (60.30%), and the lowest in San Andrea (st.) (41.60%).

From the results given in Table 3 we can conclude that the rough rice has the highest percentage of water (13.50%), and the brown rice has the smallest percentage of water(10.40%).The brown rice contains the highest percentage of crude proteins (7.90%), and the rough rice has the smallest percentage of crude proteins (6.80%).

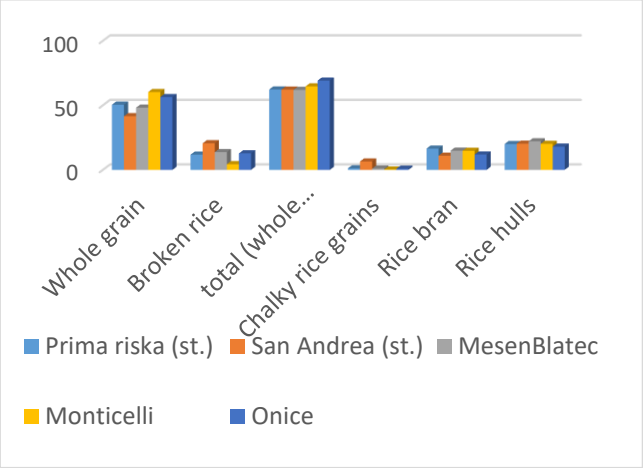

Figure 1 - Fractions of rice [%]

Types of rice	water	Carbohydrates	Crude proteins	fats	Cellulose	ash
Rough rice	13.5	66	6.8	1.6	7.41	4.07
Brown rice	10.4	77.2	7.9	2.9	3.5	1.5
White rice	11.4	79.9	7.1	0.7	1	0.6

Table 1- Chemical composition of rice grain [%]

4. Conclusion

Modern science claims that rice is a very suitable food for humans because it contains a complex of carbohydrates that provide the human body with the necessary energy. Rice is also a good source of other essential nutrients such as thiamine, riboflavin, niacin, phosphorus, iron, and potassium. Its nutritional value is also increased because rice is cholesterol-, sodium-, and gluten-free.

5. References

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