

THE IMPORTANCE OF AMINO ACIDS IN POPCORN MAIZE KECSKEMETI GYONGY IN IRIGATED AND NON IRIGATED SYSTEM

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ABSTRACT

In order to determine and establish the quantity and quality of proteins used by the body, many researchers, scientists, geneticists, physiologists, ameliorators have made numerous studies on completing the necessary of amino acids taken from vegetable products in order to maintain the balance of amino acids, vital for the harmonious and healthy development of the body. The importance of capitalization of corn grains Pop Corn Kecskemeti Gyongy and their commercialization, led to detailed research of the content of amino acids at corn hybrid Kecskemeti Gyongy.

Taking into account the genetic dowry of that hybrid, in the two systems irrigated and not irrigated the quantity and quality of amino acids and essential amino acids and their connection in the two systems. As in proteins can be found 23 different amino acids which plays important role in obtaining qualitative production at corn grains, it will be imposed getting more significant results, to improve their quality: protein substances.

INTRODUCTION

Protean substances from corn grain belong to globulins, prolamin and gluten. Methionine was also observed, an essential amino acid together with lysine and tryptophan increase the alimentary quality of this one, expecting from corn, the increase of the protein content at 12-15%.

Because most essential amino acids are in different quantities in the food composition of a group where some nutrient factors are in large quantities, while others are in small quantity or missing, therefore in order to have a balanced diet it is necessary to eat food from different groups. Thus, in this paper, we study some basic essential amino acids taken from corn grains, besides other existing therein and required for the daily ratio supplement of amino acids useful to humans, such as tryptophan and methionine. Due to its high contents in fiber, corn regulates bowel movement, prevents constipation, leading to occurrence of colorectal cancer. Rich in polyunsaturated fatty acids, corn oil stops the growth of blood cholesterol, being a good diuretic and permanent consumption can prevent water retention in the body.

The percentage of protein in corn grain can range from 10.8% to 20% and fat percentage from 4.7% to 15%, this is an important factor for studying all amino acids present in the grain, but mainly corn caryopses are followed containing more lysine and tryptophan by diversifying more hybrids.

With this paper, the author attempts to emphasis the economic importance of corn for pop corn but also the nutrient value for human, for zoo technical sector, in the industry of bio fuels, etc

MATERIALS AND METHOD

Kecskemeti Gyongy hybrid was studied, which due to the high value of protein existing in corn grains, led to determining the existing essential and nonessential amino acids particularly in studying tryptophan and methionine as essential amino acid required for supplementing the protein deficiency in the human body. Hybrids were planted in

Oltenia area, Daneți village in two years of study: 2011-2012, at a density of 50,000 plants / ha, after the wheat crop in two systems: irrigated and non-irrigated in order to observe the amount of existing amino acids existing in grains especially tryptophan and methionine. Soil analyzes were performed. Year 2011 can be characterized in terms of climate as a year of two distinct parts: the first half, from January to June (with inadequate water supply), followed by the second half with excess rainfall. This led to obtaining satisfactory yields. In 2012, the water demand is not satisfied, having a lower deficit, being a poor year in terms of water.

The chemical analyses of corn grains emphasized differential quantities of amino acids on corn grains that were cultivated in the two systems: irrigated and not irrigated.

ANALYSIS OF EXPANSION WITHIN THE LABORATORY

At hybrid Kecskemeti Gyongy, depending on the production of grains was calculated the content in amino acids in kg/ ha. The determination of analyses was realized through the method of spectrophotometry and chromatography, after preliminary the tests that were analyzed have been dried in the kiln.

The acids: monoaminomonocarboxylic - were studied: alanine, valine, leucine, isoleucine and oxydrilats and sulfurhydrate of acids from the group of monoaminomonocarboxylic have been studied: serine, treonine, cysteine, methionine. From monoaminomonodicarboxylic acids have been studied: aspartic, glutamine. From diaminomonocarboxylic acids: arginine and lysine. An important aromatic amino acid that was studied was thyeozin and from heterocyclic amino acids has been studied: tryptophan, proline and histidine.

RESULTS AND DISCUSSION

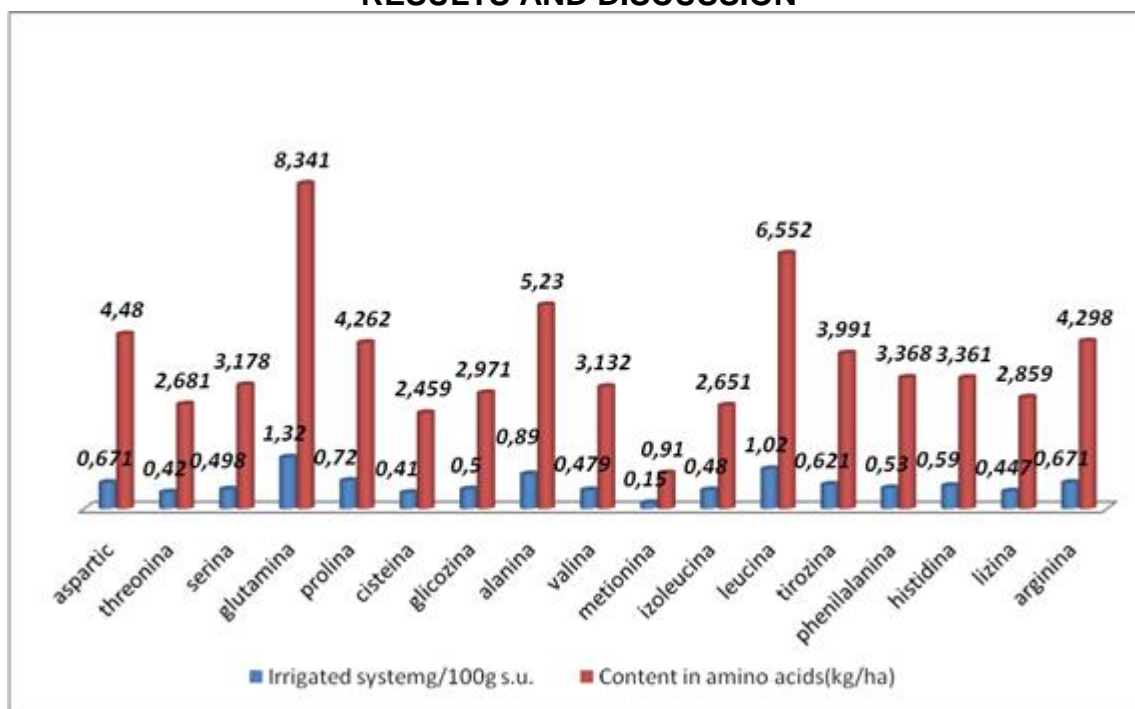


Figure.1. The contents in aminoacids expressed as kg/ha (a function of the crop grains production) and Kecskemeti Gyongy hybrid irrigated system

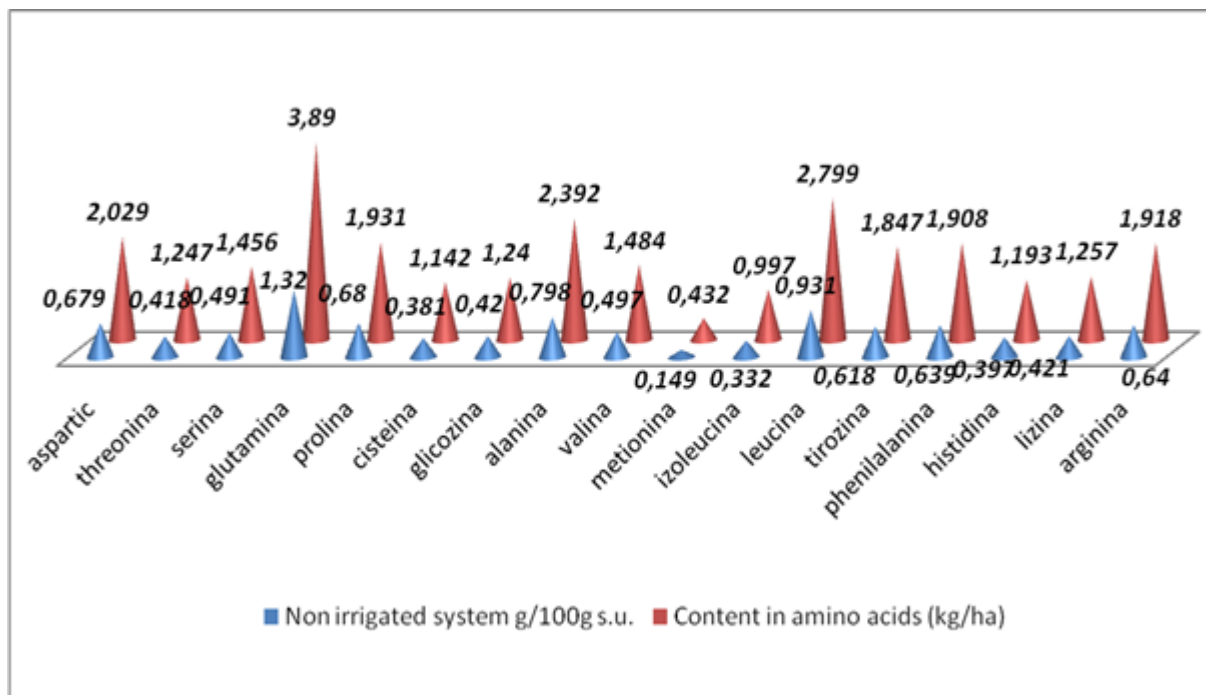


Figure.2. The contents in aminoacids expressed as kg/ha (a function of the crop grains production) and Kecskemeti Gyongy hybrid non irrigated system



Figure 3. Pop Corn. Kecskemeti Gyongy

So, in the not irrigated system of culture can be observed significant values of the aspartic acid, proline, alanine, leucine, thyrozin, phenilalanin and arginine (g/100 g S.U). In the irrigated system of production, the content at 100 g s.u., presents significant values at the same amino acids, existing a significant difference at the amount of amino acids, as well as essential amino acids of almost 300g, and at hectare the difference is of about 7,8 kg/ ha at essential amino acids.

For quantitative determination of amino acids have been used the chromatographic method. Essential amino acids are those amino acids which can be synthesized only in the vegetable kingdom. They are of a special importance because in their absence specific proteins that are necessary to the organism can not be synthesized.

From the class of essential amino acids is a part: valine, leucine, isoleucine, phenilalanin, treonin, methionine, lysine, tryptophan, histidine. It was observed the dose of tryptophan which was read at photocolormeter with red filter and will be compared with the standard curve made with casein.

Dosing the lysine was determined and read at spectrophotometer, and aromatic amino acids have been identified through xanto protein reaction.

CONCLUSIONS

1. The content in amino acids presents values that are superior depending on the culture system in favor of the irrigated one, being observed low levels of the amino acids in the hybrid Kecskemeti Gyongy .
2. We recommend for production the hybrid Kecskemeti Gyongy, in irrigation conditions
3. The main protein of the corn grain will be characterized by an increased content of glutamic acid obtained in both systems, on second place being leucine.
4. It is also recommended the cultivation of this hybrid with a shorter period of vegetation because are richer in protein substances than late hybrids.

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