13th International Scientific and Professional Conference
WITH FOOD TO HEALTH
16th and 17th September 2021
13 hranom do zdravlja with food to health
OSIJEK, CROATIA 2021

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CARNOSINE – FUNCTIONAL INGREDIENT IN CHICKEN MEAT

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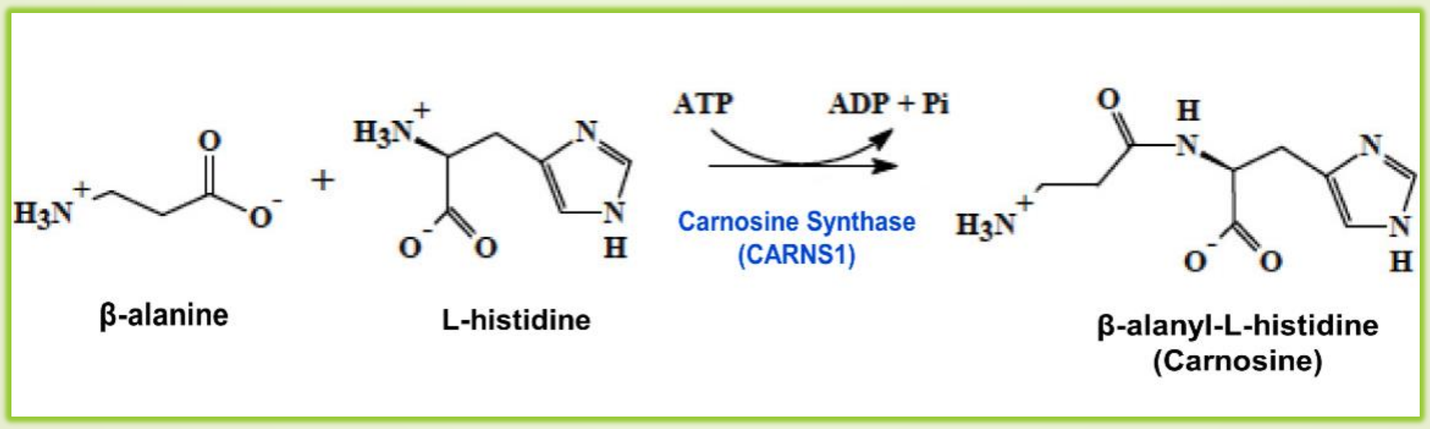
Abstract

Carnosine is a natural metabolite in chicken cells with antioxidant activity. It derives from the amino acids β-alanine and L-histidine with carnosine synthase enzyme action. Larger quantities of this metabolite are present in skeletal and brain tissue. Anserine is formed by carnosine methylation. Recent researches have shown that carnosine can prolong cell lifetime, rejuvenate old cells, inhibit protein glycosylation and preserve cellular homeostasis. It is important in neurotransmission maintenance. Carnosine inhibits lipid oxidation and improves stability during meat storage. There is a difference in the carnosine content in some parts of chickens' carcass. Breast muscles (white meat) contain more carnosine than muscles of drumsticks and thighs (dark meat). Genetic basis of broilers and sex also affect carnosine and anserine content in muscles. Higher carnosine values were determined in the thighs meat of female chickens (339.28 µg/g tissue) compared to male chickens (319.29 µg/g tissue) P>0.05). White meat of female chickens contains 1200.05, and of male ones 684.82 µg/g tissue in standard breeding. Carnosine concentrations in both animal and human muscle tissue can be increased by daily ration supplemented with amino acids (β-alanine and L-histidine). Carnosine deposition in the breast and thigh muscles depends on the added concentrations of some amino acids in the broilers feed.



Source: Kwiatkowski, Kiersztan and Drozak (2018)

Carnosine content in chicken muscles (µg/g tissue)	Breast muscle	Thigh muscle	Reference
Male **Female**	684,82 **1200,05**	279,57 **304,88**	Intarapichet and Maikhunthod (2005)
Male **Female**	- -	319,29 **339,28**	Kralik et al. (2010)
Male **Female**	1012,66 **1079,85**	404,97 **464,69**	Kralik et al. (2011)
Male **Female**	831,23 **912,11**	395,82 **409,55**	Kralik et al. (2015)
Mixed sample	665,47	261,19	Kralik et al. (2018)

Acknowledgement

This study is supported by the European Structural and Investment Funds grant for the Croatian National Scientific Center of Excellence for Personalized Health Care (grant #KK.01.1.1.01.0010) and by Ministry of Science and Education of the Republic of Croatia.