tion of many fertilizers, its aqueous solutions are used as a protein denaturation factor and it is ingredient of cosmetic products.

In these studies solution enthalpies of series aminoalkanephosphonic acids (phosphonovaline and phosphononorvaline) and N-methyl derivatives (N-methyl-aminopropylphosphonic acid and N,N-dimethylaminopropylophosphonic acid) in water and aqueous urea in 298.15 K have been measured. Modified McMillan-Mayer theory allows use these data to calculate enthalpic heterogenous pair interaction coefficients of aminophosphonic acids – urea molecules.

MINERAL CONTENTS IN THE LONGEST BACK MUSCLE FOR SIX BREEDS OF PIGS

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Meat is known as an excellent source of essential trace elements such as iron (Fe), zinc (Zn), selenium (Se), vitamins A, B12 and folic acid (Gerber et al., 2009; Olaoye, 2011). Meat is an important nutrient as an essential part of a mixed diet that ensures adequate delivery of essential micronutrients and amino acids (Nohr et al., 2007; Gerber et al., 2009). For the genetic basis, the correct selection of breeds or lines is very important because the genetic influence on meat quality is very different among breeds as well as among animals in the same breed (Yu Gao et al., 2007). The aim of this study - to explore and compare the different pig breed and crossbreed longest back muscle mineral content.

The research of mineral content characteristics of various breeds pig was carried out at National Food and Veterinary Risk assessment Institute. The samples for analysis were taken from: large white (LW-12 samples), crossbreeds of landrace and large white (LWxL-16 samples), crossbreeds of yorkshire and large white (LWxY-12 samples), pietren (P-15 samples), landrace (L-10 samples), crossbreeds of yorkshire and pietren (YxP-9 samples) pig carcasses. Pigs were held at the Control Feeding Station of Pigs under standard feeding and keeping conditions. Samples were digested using ETHOS 900 microwave digestion system. The sample digestion procedure was performed according to the NF EN 13805 standard “Foodstuffs – Determination of trace elements – Pressure digestion. ICP-MS measurements were performed using ICP Mass Spectrometer ELAN DRC-e (Perkin Elmer Sciex).

The data was analyzed by using statistical R pack statistical package and the Excel program for identifying signs of arithmetic averages and it's the errors of standard deviation, variation coefficients.

Data of the study are given in the table and represent the difference of mineral content among different pig breeds in the table.

Parameters	Symbols	LW	LWxL	LWxY	P	L	YxP
Na, mg/kg	X	434.08	446.50	457.55	441.4	403.2*	419*
	m_x	±15.69	±8.19	±17.21	±11.27	±18.50	±10.29
	C_V	9.56	7.10	11.28	9.56	10.26	4.91
Mg, mg/kg	X	290.00	274.625*	302.32***	274.7	264.7	271.2
	m_x	±5.04	±70.91	±4.60	±3.57	±7.62	±7.56
	C_V	4.60	5.52	4.56	4.86	6.44	5.58
Ca, mg/kg	X	55.925	59.1250	58.32	54.6**	51.7**	50.6*
	m_x	±1.47	±15.27	±2.71	±1.39	±3.21	±1.48
	C_V	6.96	9.72	13.93	9.54	13.86	5.86
Zn, mg/kg	X	9.2163	10.683***	10.0741*	12.3643	11.118	11.9407
	m_x	±0.25	±2.76	±0.31	±0.35	±1.21	±0.79
	C_V	7.24	8.44	9.28	10.57	24.34	13.26
Se, mg/kg	X	0.1351	0.1406	0.1351	0.1478	0.1507	0.1416
	m_x	±0.003	±0.04	±0.005	±0.004	±0.01	±0.01
	C_V	6.75	9.65	11.64	9.37	9.93	13.00
Cu, mg/kg	X	0.4022	0.4536*	0.4323	0.494**	0.4355	0.505**
	m_x	±0.02	±0.12	±0.008	±0.018	±0.06	±0.02
	C_V	10.50	13.65	5.60	13.40	32.03	9.88
Fe, mg/kg	X	6.2596	7.4080	5.7445*	6.6681	4.01**	6.6315
	m_x	±0.51	±1.91	±0.45	±0.69	±0.28	±0.15
	C_V	21.59	25.97	23.65	38.58	15.71	4.42
Ba, mg/kg	X	0.0200	0.0191	0.0281	0.0191	0.0200	0.0158
	m_x	±0.002	±0.005	±0.004	±0.002	±0.001	±0.003
	C_V	19.89	42.46	44.61	47.91	53.76	36.50

* - P<0.05; ** - P<0.01; *** - P<0.001

Comparing the amount of different essential minerals in the longest back muscle, the highest amount of Na were in LWxY meat, at least in L breed meat and YxP crossbreeds meat, the difference was 11.9 percent (P<0.05) and 8.4 percent (P<0.05). LWxY crossbreed had more Mg than that of L breed meat, the difference was 12.4 percent (P<0.01), but there was no significant difference among the other breeds. LWxL and LWxY had more Ca content and the least in YxP pig crossbreeds, the difference were 14.4 (P<0.001) and 13.2 percent (P<0.05). P pig breed had more Zn content than LW significantly, the difference was even 25.4 percent. Cu content of the longest back muscle were higher in P breed and YxP crossbreed and the least in LW, the difference were 18.6 (P<0.001) and 20.3 percent (P<0.05). LWxL crossbreed had significantly more Fe than that L pig breed, the difference was even 45.9 percent, but no significant differences among other

breeds and crossbreeds. However, the variation coefficients of this mineral were among the largest. LWxL had more Ba level than that of YxP (43.8 percent) crossbreeds, but no significant differences were found among other breeds. The variation coefficients of this mineral were very wide.

Various breeds of pigs had different contents of minerals in longest back muscle. LWxY crossbreed had more Na, Mg, Ca and Ba than that other breeds or crossbreeds. LWxL crossbreed had significaly more Fe and Ca (except LWxY). The most Zn and Cu had P pig breed.

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