Table S1 Metabolites identified in the ^{1}H HRMAS-NMR spectrum of meat sample. ^{1}H and ^{13}C chemical shifts are reported by referring to TSP signal (δ= 0.00 ppm).

Compound	Assignment	^{1}H (ppm)	Multiplicity [J (Hz)]	^{13}C (ppm)
Carbohydrates				
β-Glucose (β-Glc)	CH-1	4,65	d [7.9]	
	CH-2	3,25		
	CH-3	3,49		
	CH-4	3,40		
	CH-5	3,43		
	CH2-6,6'	3.89; 3.74		
α-Glucose (α-Glc)	CH-1	5,24	d [3.8]	
	CH-2	3,54		
	CH-3	3,72		
	CH-4	3,44		
	CH-5	3,82		
	CH_2-6,6'	3,79; 3,44		
Organic acids				
Acetic acid	CH_3	1,92	s	
Formic acid	HCOOH	8,46	s	
Fumaric acid	α,β-CH=CH	6,52	s	
Lactic acid (Lac)	α-CH	4,11	q [6.9]	69,03
	β-CH_3	1,33	d [6.9]	20,71
Piruvic acid	β-CH_3	2,37	s	
Amino acids				
Alanine (Ala)	α-CH	3,77		
	β-CH_3	1,48	d [7.2]	
Arginine (Arg)	α-CH	3,77		
	β-CH_2	1,91		
	γ-CH_2	1,71		
	δ-CH_2	3,25		
Aspartate (Asp)	α-CH	3,88	dd	
	β,β'-CH_2	2,65		
Glutamine (Gln)	α-CH	3,77		54,18
	β,β'-CH_2	2,15	m	25,98
	γ-CH	2,46	m	30,43
Glutamate (Glu)	α-CH	3,77		54,93
	β-CH	2,06	m	26,22
	β'-CH	2,10		26,22
	γ-CH_2	2,36	m	33,40
Isoleucine (Ile)	α-CH	3,68		
	β-CH	1,99		

	γ-CH_3	1,01	d [7.2]	
	γ-CH	1,26		
	γ'-CH	1,49		
	δ-CH_3	0,93		
Leucine (Leu)	α-CH	3,72		
	β-CH_2	1,75		
	γ-CH	1,70		
	δ-CH_3	0,97		
Lysine (Lys)	α-CH	3,77		
	β-CH_2	1,89		
	γ-CH_2	1,46		
	δ-CH_2	1,69		
	ε-CH_2	3,01		
Metionine (Met)	α-CH	3,82		
	β-CH_2	2,15		
	γ-CH_2	2,64		
	S-CH_3	2,15	s	
Phenylalanine (Phe)	*o*-CH	7,33	d	
	m-CH	7,43		
	p-CH	7,39	d	
Proline (Pro)	α-CH	4,14		
	β-CH	2,36		
	β'-CH	2,08		
	γ-CH_2	2,01		
	δ-CH_2	3,35		
Serine (Ser)	α-CH	3,85		
	β,β'-CH_2	3,96		
Threonine (Thr)	α-CH	3,63		
	β-CH	4,26	m	
	γ-CH_3	1,33	d	19,30
Tyrosine (Tyr)	CH-2,6, ring	7,20	d [8.4]	
	CH-3,5, ring	6,90	d [8.4]	
Valine (Val)	α-CH	3,63		
	β-CH	2,27	m	
	γ-CH_3	1,00	d [7.0]	
	γ'-CH_3	1,05	d [7.0]	
Fatty acids				
Saturated fatty acids				
C16 Palmitic acid (p) C18 Stearic acid (s)	CH_2-3	1,62		24,49
	CH_2-2	2,26		33,40
	CH_2-4 ÷ CH_2-15 (p) CH_2-4 ÷ CH_2-17 (s)	1,32		28,95
	CH_3-16 (p) CH3-18 (s)	0,91		14,79

Monounsaturated fatty acids				
C18:1 (oleic acid)	CH_2-2	2,27		33,40
	CH_2-3	1,64		24,49
	CH_2-4,7	1,32		28,95
	CH_2-8	2,04		26,72
	CH-9	5,34		130,64
	CH-10	5,34		130,64
	CH_2-11	2,04		26,72
	CH_2-12,17	1,32		28,95
	CH_3-18	0,94		14,79
Polyunsaturated fatty acids				
C18:2 (linoleic acid)	CH_2-2	2,27		33,40
	CH_2-3	1,64		24,49
	CH_2-4,7	1,32		28,95
	CH_2-8	2,04		26,72
	CH-9	5,34		130,64
	CH-10	5,34		130,64
	CH_2-11	2,79		
	CH-12	5,34		130,64
	CH-13	5,34		130,64
	CH_2-14	2,04		26,72
	CH_2-15,17	1,32		28,95
	CH_3-18	0,94		14,77
Other metabolites				
Choline	N-CH_3	3,19	s	53,88
Carnosine	CH-5, ring	7,10	s	118,76
	CH-3, ring	8,11¸8.24	s	135,83
	CH to ring	3,07	dd [17,6; 8,6]	27,46
	CH' to ring	3,19	dd	27,46
	CH-COOH	4,49	m	54,93
	CH_2-C=O	2,68	m	31,17
	CH_2-NH_2	3,24	m	34,88
Carnitine	α-CH_2	2,46	m	43,05
	β-CH	4,57	m	72,00
	γ-CH_2	3,43	m	70,51
	N-CH_3	3,23	s	54,18
Creatine and/or phosphocreatine	N-CH_3	3,04	s	36,37
	N-CH_2	3,94	s	54,18
Hydroxybutyric acid[a]	CH_3-	1.15-1.21	d [6.16; 6.95]	
Hypoxanthine	NH-C=N	8,19	s	
	NH-C=O	8,22	s	
ATP/ADP/AMP/IMP	C1'H, ribose	6,15	d [5.9]	

	C2'H, ribose	4,66	
	C3'H, ribose	4,51	
	C4'H, ribose	4,38	
	CH2	4,12	
	CH-2, ring	8,53	s
	CH-8, ring	8,23	s
Adenosine/Inosine	C1'H, ribose	6,10	d [5.7]
	C2'H, ribose		
	C3'H, ribose	4,44	
	C4'H, ribose	4,29	
	CH_2	3,93	
	CH-2, ring	8,24	s
	CH-8, ring	8,31	s
NAD		8,72	broad
		8,28	broad
Sterols	CH_3	0,74	broad
Taurine	S-CH_2	3.26	m
	N-CH_2	3.43	m
Xanthine	NH-C=N	7,91	s

[a] The hydroxybutyric acid is present in different forms, here the range of chemical shift and coupling constants are reported.