

Embryonic Thermal Manipulation Affects the Antioxidant Response to Post-Hatch Thermal Exposure in Broiler Chickens

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Table 1. effects of heat stress on the hepatic mRNA levels of certain antioxidant enzymes in broiler chickens subjected to embryonic TM.

Liver	Control		TM	
	TN	CHS	TN	CHS
NOX4				
Day 0	1.00 ± 0.20 ^{aw}	1.03 ± 0.20 ^{aw}	1.09 ± 0.10 ^{ax}	1.13 ± 0.10 ^{aw}
Day 1	1.03 ± 0.17 ^{aw}	2.21 ± 0.37 ^{bx}	1.13 ± 0.13 ^{ax}	2.39 ± 0.35 ^{bx}
Day 3	1.01 ± 0.14 ^{aw}	6.09 ± 1.26 ^{by}	1.03 ± 0.10 ^{ax}	1.78 ± 0.46 ^{cx}
Day 5	1.02 ± 0.10 ^{aw}	5.04 ± 2.37 ^{by}	1.08 ± 0.10 ^{ax}	1.4 ± 0.14 ^{cx}
Day 7	1.01 ± 0.20 ^{aw}	8.63 ± 4.41 ^{by}	1.15 ± 0.10 ^{ax}	1.51 ± 0.31 ^{cx}
SOD	control	TM	control	TM
Day 0	1.00 ± 0.12 ^{aw}	1.05 ± 0.42 ^{aw}	0.64 ± 0.13 ^{ax}	0.64 ± 0.13 ^{aw}
Day 1	1.11 ± 0.32 ^{aw}	1.90 ± 0.17 ^{bx}	0.67 ± 0.11 ^{ax}	1.68 ± 0.79 ^{cx}
Day 3	1.11 ± 0.42 ^{aw}	1.76 ± 0.39 ^{bx}	0.54 ± 0.13 ^{ax}	0.17 ± 0.07 ^{cy}
Day 5	1.09 ± 0.22 ^{aw}	1.86 ± 0.08 ^{bx}	0.69 ± 0.14 ^{ax}	0.91 ± 0.15 ^{aw}
Day 7	0.97 ± 0.42 ^{aw}	3.5 ± 1.50 ^{bx}	0.64 ± 0.17 ^{ax}	0.8 ± 0.12 ^{aw}
Catalase	TN	CHS	TN	CHS
Day 0	1.00 ± 0.23 ^{aw}	1.03 ± 0.33 ^{aw}	0.47 ± 0.23 ^{bw}	0.37 ± 0.23 ^{bw}
Day 1	1.13 ± 0.33 ^{aw}	2.54 ± 0.29 ^{bx}	0.39 ± 0.19 ^{cw}	2.23 ± 0.86 ^{ax}
Day 3	0.93 ± 0.22 ^{aw}	1.65 ± 0.37 ^{by}	0.47 ± 0.19 ^{cw}	0.91 ± 0.14 ^{aw}
Day 5	1.03 ± 0.14 ^{aw}	3.98 ± 0.14 ^{bx}	0.42 ± 0.23 ^{cw}	0.75 ± 0.25 ^{cw}
Day 7	1.13 ± 0.29 ^{aw}	2.70 ± 1.00 ^{bx}	0.51 ± 0.23 ^{cw}	0.94 ± 0.08 ^{aw}

Control: control group, TM: thermal manipulated group, TN: Thermoneutral, CHS: chronic heat, NOX4: NADPH oxidase 4 SOD: superoxide dismutase 2.

^{a-c} within same row, mean ±SD with different superscript differ significantly (p-value < 0.05)

^{w-z} within same treatment column, mean ±SD with different superscript differ significantly (p-value < 0.05)

Table S2: effects of heat stress on the splenic mRNA levels of certain antioxidant enzymes in broiler chickens subjected to embryonic TM.

Spleen	Control		TM	
	NOX4	TN	CHS	TN
Day 0	1.00 ± 0.23 ^{aw}	1.13 ± 0.38 ^{bw}	2.01 ± 1.01 ^{aw}	2.21 ± 1.51 ^{aw}
Day 1	1.03 ± 0.27 ^{aw}	0.62 ± 0.11 ^{bw}	1.99 ± 1.05 ^{aw}	0.47 ± 0.13 ^{bx}
Day 3	1.03 ± 0.33 ^{aw}	0.45 ± 0.09 ^{aw}	1.75 ± 1.51 ^{aw}	0.56 ± 0.06 ^{ax}
Day 5	1.03 ± 0.23 ^{aw}	2.9 ± 1.05 ^{bx}	2.03 ± 1.11 ^{aw}	0.61 ± 0.05 ^{cx}
Day 7	1.17 ± 0.23 ^{aw}	1.09 ± 0.41 ^{ay}	2.31 ± 1.21 ^{aw}	0.39 ± 0.14 ^{bx}
SOD	TN	CHS	control	TM
Day 0	1.00 ± 0.23 ^{aw}	1.03 ± 0.46 ^{aw}	0.86 ± 0.33 ^{aw}	0.86 ± 0.65 ^{aw}
Day 1	1.17 ± 0.23 ^{aw}	1.52 ± 1.04 ^{ax}	0.89 ± 0.55 ^{aw}	1.77 ± 0.93 ^{ax}
Day 3	1.03 ± 0.27 ^{aw}	2.39 ± 0.24 ^{cy}	0.75 ± 0.45 ^{aw}	1.54 ± 0.2 ^{bx}
Day 5	1.03 ± 0.33 ^{aw}	2.98 ± 0.84 ^{by}	0.86 ± 0.35 ^{aw}	3.53 ± 0.85 ^{by}
Day 7	1.13 ± 0.25 ^{aw}	4.15 ± 0.96 ^{bz}	0.90 ± 0.55 ^{aw}	1.42 ± 0.39 ^{ax}
Catalase	TN	CHS	TN	CHS
Day 0	1.00 ± 0.27 ^{aw}	1.04 ± 0.45 ^{aw}	1.45 ± 1.13 ^{aw}	1.45 ± 1.13 ^{aw}
Day 1	1.03 ± 0.33 ^{aw}	6.4 ± 1.85 ^{bx}	1.35 ± 1.33 ^{aw}	1.59 ± 1.11 ^{aw}
Day 3	1.13 ± 0.23 ^{aw}	2.09 ± 0.21 ^{ay}	1.45 ± 0.97 ^{aw}	5.71 ± 1.39 ^{ax}
Day 5	1.07 ± 0.27 ^{aw}	6.81 ± 0.22 ^{ax}	1.55 ± 0.87 ^{aw}	5.58 ± 1.16 ^{ax}
Day 7	1.09 ± 0.21 ^{aw}	15.54 ± 6.85 ^{az}	1.15 ± 1.23 ^{aw}	2.21 ± 1.65 ^{aw}

Control: control group, TM: thermal manipulated group, TN: Thermoneutral, CHS: chronic heat, NOX4: NADPH oxidase 4 SOD: superoxide dismutase 2.

a-c within same row, mean ±SD with different superscript differ significantly (p-value < 0.05)

w-z within same treatment column, mean ±SD with different superscript differ significantly (p-value < 0.05)