

**Genetic analysis of digital image derived morphometric traits of black tiger shrimp (*Penaeus monodon*)
by incorporating G×E investigations**

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Supplementary Material

G×E of traits across ponds for each of the ten morphological traits, as estimated by the genetic correlation (r_g)

(a) Body weight (BW, (g) above diagonal and body length (BL, cm) below diagonal.

Pond	149	150	152	155	156	157	160	161
149		0.93 ± 0.03	0.96 ± 0.14	0.97 ± 0.05	0.91 ± 0.08	0.97 ± 0.05	0.93 ± 0.37	0.79 ± 0.14
150	0.98 ± 0.03		0.98 ± 0.05	0.90 ± 0.06	0.84 ± 0.09	0.95 ± 0.06	0.99 ± 0.17	0.94 ± 0.20
152	0.99 ± 0.07	0.98 ± 0.05		0.89 ± 0.12	0.87 ± 0.12	0.93 ± 0.07	0.95 ± 1.15	0.91 ± 0.80
155	0.95 ± 0.06	0.91 ± 0.06	0.89 ± 0.10		0.79 ± 0.10	0.84 ± 0.14	0.96 ± 0.13	0.63 ± 0.45
156	0.93 ± 0.05	0.86 ± 0.07	0.90 ± 0.10	0.83 ± 0.09		0.76 ± 0.22	0.78 ± 0.33	0.76 ± 0.42
157	0.99 ± 0.03	0.97 ± 0.05	0.97 ± 0.05	0.88 ± 0.11	0.77 ± 0.21		0.98 ± 0.19	0.99 ± 0.07
160	0.92 ± 0.24	0.96 ± 0.22	0.99 ± 0.90	0.85 ± 0.22	0.64 ± 0.40	0.97 ± 0.18		0.95 ± 0.05
161	0.92 ± 0.18	0.98 ± 0.13	0.93 ± 0.70	0.72 ± 0.33	0.82 ± 0.32	0.98 ± 0.11	0.96 ± 0.05	

(b) Body size (BS, cm²) above diagonal and head size (HS, cm²) below diagonal.

Pond	149	150	152	155	156	157	160	161
149		0.99 ± 0.03	0.98 ± 0.16	0.98 ± 0.06	0.92 ± 0.07	0.97 ± 0.07	0.92 ± 0.28	0.64 ± 0.54
150	0.99 ± 0.04		0.97 ± 0.08	0.95 ± 0.06	0.86 ± 0.08	0.96 ± 0.06	0.96 ± 0.16	0.92 ± 0.20
152	0.97 ± 0.25	0.97 ± 0.10		0.96 ± 0.08	0.88 ± 0.12	0.95 ± 0.06	0.96 ± 0.99	0.90 ± 0.78
155	0.99 ± 0.06	0.96 ± 0.06	0.98 ± 0.08		0.84 ± 0.09	0.91 ± 0.10	0.79 ± 0.28	0.63 ± 0.45
156	0.91 ± 0.08	0.87 ± 0.08	0.82 ± 0.15	0.86 ± 0.09		0.78 ± 0.21	0.49 ± 0.47	0.69 ± 0.46
157	0.97 ± 0.10	0.98 ± 0.04	0.95 ± 0.06	0.92 ± 0.10	0.74 ± 0.23		0.99 ± 0.17	0.99 ± 0.08
160	0.93 ± 0.30	0.93 ± 0.19	0.99 ± 0.70	0.87 ± 0.22	0.62 ± 0.42	0.97 ± 0.19		0.92 ± 0.09
161	0.41 ± 0.71	0.90 ± 0.22	0.94 ± 0.45	0.59 ± 0.48	0.53 ± 0.59	0.98 ± 0.09	0.90 ± 0.10	

(c) Abdomen size (AS, cm²) above diagonal and abdominal percentage (AP, %) below diagonal.

Pond	149	150	152	155	156	157	160	161
149		0.99 ± 0.03	0.98 ± 0.12	0.97 ± 0.06	0.91 ± 0.07	0.97 ± 0.06	0.95 ± 0.25	0.80 ± 0.38
150	0.83 ± 0.20		0.97 ± 0.06	0.94 ± 0.06	0.85 ± 0.09	0.94 ± 0.07	0.92 ± 0.21	0.95 ± 0.18
152	0.77 ± 0.29	0.87 ± 0.20		0.95 ± 0.08	0.91 ± 0.11	0.96 ± 0.06	0.97 ± 1.05	0.91 ± 0.97
155	0.74 ± 0.18	0.74 ± 0.17	0.83 ± 0.49		0.83 ± 0.09	0.91 ± 0.10	0.74 ± 0.31	0.67 ± 0.42
156	0.45 ± 0.30	0.71 ± 0.20	0.86 ± 1.19	NA		0.80 ± 0.20	0.42 ± 0.49	0.79 ± 0.38
157	0.84 ± 0.24	0.91 ± 0.18	0.86 ± 0.37	NA	NA		0.97 ± 0.19	0.99 ± 0.08
160	NA	0.98 ± 1.33	NA	NA	NA	NA		0.93 ± 0.08
161	0.95 ± 0.32	0.97 ± 0.59	NA	NA	NA	NA	NA	

(d) Tail tip (TT, cm) above diagonal and front-back ratio (FBR) below diagonal.

Pond	149	150	152	155	156	157	160	161
149		0.98 ± 0.04	0.87 ± 0.15	0.96 ± 0.09	0.91 ± 0.07	0.93 ± 0.09	0.99 ± 0.16	0.98 ± 0.19
150	0.96 ± 0.03		0.93 ± 0.08	0.95 ± 0.08	0.87 ± 0.08	0.86 ± 0.13	0.99 ± 0.13	0.99 ± 0.14
152	0.94 ± 0.05	0.83 ± 0.20		0.92 ± 0.13	0.67 ± 0.28	0.90 ± 0.16	0.48 ± 1.25	0.41 ± 1.73
155	0.95 ± 0.03	0.70 ± 0.20	0.98 ± 0.02		0.90 ± 0.09	0.92 ± 0.13	0.68 ± 0.42	0.71 ± 0.44
156	0.93 ± 0.04	NA	0.98 ± 0.02	0.99 ± 0.13		0.72 ± 0.25	0.39 ± 0.56	0.44 ± 0.85
157	0.58 ± 0.38	0.90 ± 0.19	0.98 ± 0.17	0.99 ± 0.01	NA		0.72 ± 0.43	0.99 ± 0.12
160	NA	NA	NA	NA	NA	NA		0.97 ± 0.06
161	0.62 ± 0.91	0.51 ± 1.01	NA	NA	NA	NA	NA	

(e) Condition factor (CF) above diagonal and condition factor length (CFL) below diagonal.

Pond	149	150	152	155	156	157	160	161
149		0.99 ± 0.03	-0.02 ± 0.46	0.56 ± 0.27	0.97 ± 0.02	0.86 ± 0.18	0.11 ± 1.24	NA
150	NA		0.99 ± 0.03	0.21 ± 0.75	0.84 ± 0.57	-0.13 ± 0.83	NA	NA
152	0.99 ± 0.18	NA		0.57 ± 0.67	0.99 ± 0.02	0.93 ± 0.09	NA	NA
155	NA	NA	NA		NA	NA	NA	NA
156	NA	NA	NA	NA		NA	NA	NA
157	NA	NA	NA	NA	NA		NA	NA
160	NA	NA	NA	NA	NA	NA		NA
161	NA	NA	NA	NA	NA	NA	NA	

