A Temperature-Dependent Index of Mitotic Interval
(τ_0) in *Haliotis gigantea* and *Haliotis discus*

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In order to establish effective procedures for chromosome manipulation in *Haliotis gigantea* and *H. discus*, which are of enormous aquacultural potential, temperature-dependent measures of mitotic intervals (τ_0) were determined. Mitotic intervals (τ_0) in these abalone were determined by averaging the duration of the first and third embryonic divisions over a range of temperatures from 8 to 26℃. The relationships of each mitotic interval at two cell (τ_I), four cell (τ_{II}), eight cell (τ_{III}), sixteen cell (τ_{IV}) and τ_0, to temperature (T in ℃) in *H. gigantea* were $\log \tau_I = 176.1\text{-}28.3T$, $\log \tau_{II} = 199.5\text{-}12.4T$, $\log \tau_{III} = 236.2\text{-}12.2T$, $\log \tau_{IV} = 269.3\text{-}14.1T$ and $\log \tau_0 = 83.1\text{-}32.8$, respectively. The relationships of each mitotic interval at τ_I, τ_{II}, τ_{III}, τ_{IV} and τ_0, to temperature in *H. discus* were $\log \tau_I = 104.9\text{-}13.8T$, $\log \tau_{II} = 138.3\text{-}10.5T$, $\tau_{III} = 172.4\text{-}10.2T$, $\log \tau_{IV} = 211.3\text{-}12.2T$ and $\log \tau_0 = 85.6\text{-}33.3T$, respectively. There were strong, negative correlations between mitotic interval and water temperatures for all ten temperatures in these two species (*H. gigantea*: $Y = -138.75 \log X + 341.25$, $R^2 = 0.97$; *H. discus*: $Y = -112.33 \log X + 255.22$, $R^2 = 0.98$, where Y is mitotic interval and X is temperature).

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