

Gill Na,K-ATPase Activity of the Freshwater Shrimp *Macrobrachium amazonicum*: Effect of High Salinity Acclimation.

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Maintaining the ionic concentrations of the body fluids within appropriate limits constitutes a challenge for freshwater crustaceans. Salt losses are counterbalanced by active ion capture through the gills, and the (Na,K)-ATPase is involved in Na⁺ uptake in dilute media. We report a comparative kinetic characterization of gill (Na,K)-ATPase in *M. amazonicum* acclimated for 10 days to 21‰ salinity or freshwater. (Na,K)-ATPase rich microsomes were obtained according to Furriel et al. (J Exp Zool **301(A)**:63, 2004) from adult animals collected from Usina São Geraldo lagoon (Sertãozinho-SP). Activity was assayed continuously, at 25°C, in 50 mM Hepes buffer, pH 7.5. For high-salinity acclimated shrimps, ATP hydrolysis occurred with site-site interactions ($n_H=1.3$), $V=107.2$ U/mg and $K_{0.5}=0.033$ mM. Activity stimulation by Mg²⁺ ($V=106.2$ U/mg; $K_{0.5}=0.47$ mM) and Na⁺ ($V=100.1$ U/mg, $K_{0.5}=2.8$ mM) was also cooperative, while stimulation by K⁺ ($V=123.2$ U/mg; $K_M=1.9$ mM) and NH₄⁺ ($V=159.7$ U/mg; $K_M=5.8$ mM) followed Michaelian kinetics. In contrast, freshwater shrimps' enzyme hydrolyzed ATP with 2.5-fold lower specific activity, and $K_{0.5}$ values for ATP, Mg²⁺ and Na⁺ were respectively 3.8-, 1.7-, and 1.9-fold lower, while that for K⁺ was 2.1-fold higher. Further, the K_I for ouabain was 2.1-fold higher (264.4 μM) for 21‰ acclimated shrimps. Data suggest that *M. amazonicum* may express a distinct isoenzyme in response to salinity acclimation. Supported by: CAPES, FAPESP, CNPq.