The physiological basis for growth differences between two clam species (genus *Ruditapes*): Allometric size-scaling relationships

Amaia Autor, Markaide P and Navarro E
Department of Genetics
Physical Anthropology and Animal Physiology
University of Basque Country
Bizkaia, Spain

Abstract

Clams (genus *Ruditapes*) constitute one important component of infaunal macrobenthic communities in coastal areas. Coexistence of two species–the native clam (*R. decussatus*) and the Manila clam (*R. philippinarum*) introduced some decades ago for commercial purposes in the intertidal zone along the Atlantic coast, poses the question of resource partitioning among populations of both species since these clams share a common filter – feeding mechanism. In this study, two main physiological components of the individual energy balance–filtration and metabolic rates were determined in these clams in order to ascertain whether differences in physiological behavior accounted for higher rates of growth reported in the introduced species (FAO reports). To cover growth trajectories, measurements were performed for a wide size-range of clams and physiological rate determinations formalized through allometric size-scaling relationships. Comparisons of allometric equations using ANCOVA showed lack of significant inter-specific differences in size exponents for either filtration or metabolic rates. Concerning the intercepts, differences were found no-significant for metabolic rates while intercept for filtration rates was significantly higher in *R. decussatus.* Thus, results do not support the expectation of higher filtration in the introduced species as inferred from their higher rates of growth reported. However, present filtration rates were based on active filtering individuals and complementary information concerning cycles of activity in both species is needed in order to achieve environmentally realistic assessments of energy acquisition.

Biography

Amaia Autor has recently finished her MSc in Zoology at Complutense University of Madrid. She is giving the first step toward research by trying to publish a work about extra-pair paternity in blue tits (directed by Santiago Merino and Elisa Perez of MNCN-CSIC) and by the work presented here about the inter-specific differences between two species of clams.

aautor002@gmail.com