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## Abstract

A laboratory experiment was conducted to obtain the physiological data of filter-feeding sessile organisms, *Mytilus galloprovincialis*, *Crassostrea gigas*, *Fistulobalanus albicostatus* and *Styela plicata*, dominated on seawalls in the pacific coast of Japan. Clearance, faecal egestion and ammonia excretion rates of each species were measured at a constant food (phytoplankton; *Skeletonema costatum*) concentration, with manipulating two factors, water temperature and body mass. The relationships between those rates and the factors were represented by a set of common equation. The result of regression analysis showed that each rate was significantly correlated with water temperature or body mass. Absorption efficiencies unrelated to both water temperature and body mass, were estimated to be 69.5% for *M. galloprovincialis*, 59.4% for *C. gigas*, 64.2% for *F. albicostatus* and 24.0% for *S. plicata* in average. Clearance rates, furthermore, were represented by the two kinds of equations, namely  $CR_1$  and  $CR_2$  as the functions of both factors. Analysis of differences between the observed and predicted values suggested that the  $CR_2$  gives more reliable estimates for clearance rates of the filter-feeding organisms. This study provides important parameters for nitrogen budget of sessile organisms inhabiting on seawalls and the effects on the coastal marine environments.