

OSMOTIC AND IONIC BALANCE IN THE MANGROVE SIPUNCULID, *PHASCOLOSOMA ARCUATUM*

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ABSTRACT

The sipunculid *Phascolosoma arcuatum* (GRAY 1828) occurs from lowest to highest levels of mangrove swamps along the west coast of Peninsular Malaysia.

The chloride ion content of coelomic fluid of freshly collected *P. arcuatum* varied from 189 to 571 meg/l Cl^- , and the total osmotic content varied from 396 to 1135 mosm/l . The lower concentrations were hyperionic and hyperosmotic to the surrounding water, but the higher concentrations of coelomic fluid were isoionic and isosmotic.

Animals kept for up to 64 hours in the laboratory in artificial seawater ranging from 40 to 100% standard seawater were uniformly isoionic and isosmotic at equilibrium. Weight stabilized at about the same time as did ionic and osmotic content of the coelomic fluid, without evidence of being regulated.

Under natural conditions, mud in the worm's guts and around them may act as a buffer, thereby allowing the animals to maintain an ionic and osmotic state differing from that of their environment.

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