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Oxygen consumption of doliolids (Tunicata, Thaliacea)

Marion Köster^{1*}, Gustav-Adolf Paffenhöfer², Carroll V. Baker² and James E. Williams²

¹Institut für Ökologie der Universität Greifswald, Schwedenhagen 6, 18565 Kloster/Hiddensee, Germany

²Skidaway Institute of Oceanography, 10 Ocean Science Circle, Savannah, GA 31411, USA

Abstract:

The goal of our study was to determine the oxygen consumption of gonozooids of the doliolid *Dolioletta gegenbauri* at near-environmental conditions. Time-series experiments included three different food concentrations and having the gonozooids suspended during the entire study periods while recording oxygen concentrations in the experimental vessels continuously with integrated planar optodes. Hourly oxygen consumption increased evenly with increasing body weight implying that weight-specific oxygen consumption rates did not change with increasing weight i.e. they were weight-independent. Weight-specific oxygen consumption rates at 218C resulted in average daily metabolic expenditures of 32.0% of body carbon. These rates were in the range of those of salps which had been collected *in situ*, and of non-feeding ephyrae of *Aurelia aurita* which were of similar weight as our gonozooids. No significant differences in oxygen consumption rates and metabolic expenditures among zooids feeding at different food levels were observed. Factors probably masking differences in oxygen rates were: (i) ingestion of the animal's own fecal pellets, (ii) experimental time of 5 h being too short to detect food-related changes in the respiration level and (iii) increase in O₂ consumption due to increased motion in small experimental vessels.