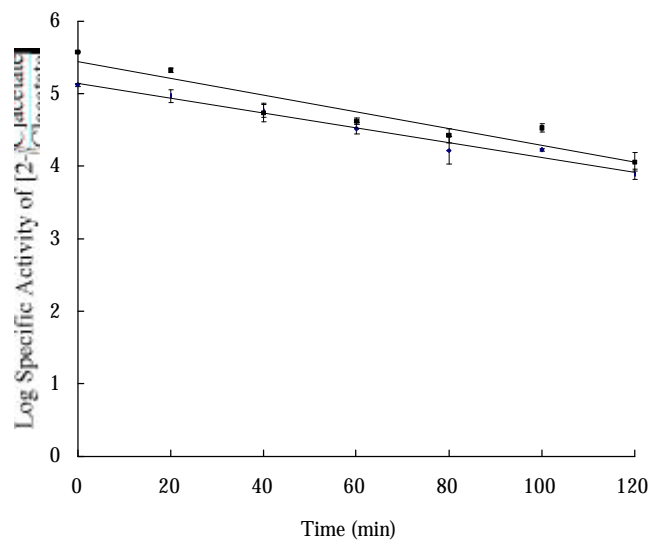


**HINDGUT FERMENTATION IN THE SILVER DRUMMER,
A MARINE HERBIVOROUS FISH**

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EXTENDED ABSTRACT ONLY – DO NOT CITE

Gastrointestinal fermentation by symbiotic microorganisms facilitates plant digestion in herbivorous reptiles, birds and mammals^{1,2}. Gut symbionts ferment cell wall components of the diet to short-chain fatty acids (SCFA), which are then taken up and used for metabolism by the host animal. Some marine herbivorous fishes contain elevated levels of SCFA, especially acetate, in the gut.³ However, the contribution of fermentation to energy balance in fishes is unknown⁴. We estimated acetate production in herbivorous silver drummer, *Kyphosus sydneyanus* (F. Kyphosidae), collected from coastal reefs off northeastern New Zealand. *Ex vivo* preparations of freshly caught silver drummer were maintained with the respiratory and circulatory systems intact. Labelled acetate was injected into ligated hindgut sections, and gut fluid sampled at intervals for periods of up to 3 hours. Acetate production rates were comparable with those found in the hindgut of herbivorous reptiles⁵ and mammals⁶. These and other stoichiometric measurements indicate over 98% of microbially-produced acetate is taken up across the gut wall by silver drummer. This work suggests hindgut fermentation can function as an effective digestive strategy in an ectothermic, warm temperate marine fish.



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