

**Title:** GUT MICROBIOTA OF THE REEF FISH *SCARUS TRISPINOSUS*

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**Abstract:**

Microorganisms play a key role in the functioning and health of terrestrial and aquatic ecosystems. Coral reefs harbor the greatest biodiversity among marine environments, providing ecosystem services. These ecosystems undergo a restructuring, called "phase shift". The two main stressors responsible for these restructurings are the exclusion of herbivores and eutrophication. Macroalgae and Turf are the main competitors of corals. When herbivory are reduced by overfishing, the competitive balance favors fast-growing organisms that dominate benthic cover. Herbivory, therefore, is a critical process in coral reefs. Scaridae is one of the four fish group that preponderate the appropriation of benthic primary production in tropical reefs. These fish can be scrapers or diggers, with teeth fused in the shape of a parrot's beak, consuming mainly Turf algae, coralline algae and corals. A better understanding of the intestinal microbial diversity of these fish, as well as all microbial metabolisms involved, will contribute to clarify the nature of the marine herbivory and its distinctive traits. The specimens of *Scarus trispinosus* were collected one in the Parcel dos Abrolhos, another in the Arquipelago. We used two specimens of *Sparisoma axillare* as control. The intestine was removed and divided into previous portion (pH ~ 6.5 and 7), median and posterior (pH between 7-8). After the sectorization and pH measurement, the intestinal contents of each of the parts were collected. DNA from these intestinal contents was extracted through the PowerSoil® DNA Isolation Kit. Samples were sequenced on IlluminaMiSeq. Metagenomes were annotated on MG-RAST. The databases used for taxonomic annotation were Genbank and RefSeq. Initial results show that of the classified sequences, the mean relative frequency in the Eukarya Domain by metagenome was 89.85% and that of Bacteria was 9.73%. Among these samples, the middle portions of the intestinal tract stood out among the others because they had a higher percentage of bacteria, demonstrating a more intense microbial activity in that portion. The Bacteria domain showed high frequency of Vibrios, among them the species *V. harveyi*, competent for fermentative and respiratory metabolism, *V. cholerae* and *V. parahaemolyticus*. The study of the intestinal microbiota of *S. trispinosus* is a major advance for a better understanding of its ecological role regarding the predation of corals.

**Keywords:** Coral reef, gut bacteria, microbial ecology, herbivory

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