Gastrointestinal Microbiota of Spiny Lobster: A Review

ABSTRACT

The gastrointestinal (GI) microbiota is a group of complex and dynamic microorganisms present in the GI tract of an organism that live in symbiosis with the host and benefit the host with various biological functions. The communities of GI microbiota are formed by various aerobic, anaerobic, and facultatively anaerobic bacteria in aquatic species. In spiny lobsters, common GI microorganisms found in the GI tract are Vibrio, Pseudomonas, Bacillus, Micrococcus, and Flavobacterium, where the structure and abundance of these microbes are varied depending on the environment. GI microbiotas hold an important role and significantly affect the overall condition of spiny lobsters, such as secreting digestive enzymes (lipase, protease, and cellulase), helping in digesting food intake, providing nutrition and synthesising vitamins needed by the host system, and protecting the host against infection from pathogens and diseases by activating an immune mechanism in the GI tract. The microorganisms in the water column, sediment, and diet are primarily responsible for altering, manipulating, and shaping GI microbial structures and communities. This review also highlights the possibilities of isolating the indigenous GI microbiota as a potential probiotic strain and introducing it to spiny lobster juveniles and larvae for better health management.