Phaeobacter inhibens as Probiotic Bacteria in Non-Axenic Artemia and Algae Cultures - DTU Orbit (08/11/2017)

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Bacterial diseases are a major constraint in aquaculture, especially in larviculture. Antibiotics that can control pathogens should be avoided due to risk of antibiotic resistance. We have shown in axenic systems of live larval feed that marine Roseobacter clade bacteria can antagonize fish pathogens and improve survival of fish larvae. Both pathogens and probionts are likely affected by the natural microbiota, and the purpose of this study was to determine if the probionts would be effective in non-axenic systems. The growth and interaction of pathogen (Vibrio anguillarum) and probionts (Phaeobacter inhibens) were studied in an Artemia and a Dunaliella tertiolecta challenge setup, and a controlled microbiota of four bacteria isolated from aquaculture was added. P. inhibens grew well in Artemia and D. tertiolecta cultures, also with a background microbiota. V. anguillarum was decreased markedly (up to four log units) by P. inhibens irrespective in presence of background microbiota. In aquaculture, the live feed is a well-known potential entry and propagation point for the fish pathogens and, hence adding the probiont at this stage would be a logical stage of introduction. This study demonstrates that probiotic bacteria can be introduced at the stage of live feed and have a pathogen reducing effect in both an Artemia and a D. tertiolecta challenge setup. This can potentially limit the subsequent use of antibiotics for control of pathogenic bacteria.

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