ABSTRAK
DINAMIKA MIKROBIOTA USUS IKAN GABUS (*Channa striata*) BUDIDAYA DENGAN PAKAN NABATI BERPROBIOTIK DAN IKAN GABUS ALAM: ANALISIS KEANEKARAGAMAN DAN POTENSI FUNGSIONAL

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Bahan baku dalam pembuatan pakan ikan yang pada umumnya menggunakan bahan dasar tepung ikan dapat disubstitusi dengan tepung *distillers dried grains with solubles*. Perubahan sumber nutrisi, dari bahan hewani ke nabati dapat mempengaruhi keseimbangan mikrobiota usus, sehingga diperlukan penambahan probiotik untuk menyeimbangkan mikrobiota usus. Penelitian ini bertujuan mengevaluasi kelimpahan dan keanekaragaman mikrobiota usus ikan gabus dengan pakan berbasis nabati dan penambahan probiotik *Bacillus* sp. serta membandingkannya dengan mikrobiota usus pada ikan gabus alam. Penelitian dilakukan selama 60 hari menggunakan rancangan acak lengkap dengan 4 perlakuan dan 3 ulangan yaitu pakan berbasis nabati dengan penambahan probiotik 0, 15, 30, dan 45 ml/kg pakan. Parameter pada penelitian ini yaitu keanekaragaman bakteri usus ikan gabus dan kelimpahan bakteri usus ikan gabus. Pengambilan sampel dilakukan di akhir penelitian. Hasil menunjukkan bahwa perlakuan P4 menghasilkan kepadatan bakteri total tertinggi yaitu $5{,}28 \pm 0{,}27 \times 10^7$ CFU/ml dan kepadatan bakteri *Bacillus* tertinggi sebesar $2{,}09 \pm 0{,}31 \times 10^7$ CFU/ml. Kelimpahan bakteri total pada usus ikan gabus alam sebesar $5{,}54 \times 10^7$ CFU/ml dan kelimpahan bakteri *Bacillus* sp. pada usus ikan gabus alam sebesar $2{,}64 \times 10^7$ CFU/ml. Pakan nabati dengan tambahan probiotik pada ikan gabus budidaya meningkatkan kelimpahan bakteri usus menguntungkan, terutama *Bacillus* gram positif berbentuk batang. Pada ikan budidaya dominan bakteri gram positif, sedangkan pada ikan alam lebih banyak bakteri gram negatif.

Kata kunci: DDGS, Ikan Gabus, Keanekaragaman Bakteri, Mikrobiota Usus, Probiotik.

ABSTRACT

GUT MICROBIOTA DYNAMICS OF CULTURED SNAKEHEAD FISH (*Channa striata*) FED WITH PROBIOTIC PLANT-BASED DIETS AND WILD SNEAKHEAD FISH: DIVERSITY AND FUNCTIONAL POTENTIAL ANALYSIS

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Fishmeal is a primary ingredient in aquaculture feeds; however, its high cost and limited availability have prompted the exploration of alternative plant-based ingredients such as distillers dried grains with solubles. Transitioning from animal-based to plant-based protein sources may disrupt the balance of intestinal microbiota, thus necessitating probiotic supplementation to maintain gut microbial homeostasis. This study aimed to evaluate the abundance and diversity of gut microbiota in cultured *Channa striata* fed a plant-based diet supplemented with *Bacillus* sp. probiotics, and to compare the microbial profile with that of wild *Channa striata*. The experiment was conducted over 60 days using a completely randomized design with four treatments and three replicates, consisting of probiotic doses at 0, 15, 30, and 45 mL/kg of feed. The parameters in this study were the diversity of gut bacteria and the abundance of gut bacteria in snakehead fish (*Channa striata*). Sampling was carried out at the end of the experiment. Results showed that the highest total bacterial count ($5.28\pm0.27\times10^7$ CFU/mL) and the abundance of *Bacillus* is ($2.09\pm0.31\times10^7$ CFU/mL) were observed in the P4 treatment. In wild *Channa striata*, total bacterial 5.54×10^7 CFU/mL and *Bacillus* abundances were 2.64×10^7 CFU/mL. The addition of *Bacillus* probiotics to plant-based diets enhanced gut bacterial abundance, especially beneficial gram-positive *Bacillus* sp. Cultured fish predominantly harbored gram-positive rods, while wild fish showed a higher pre-sence of gram-negative bacteria. These findings suggest that probiotic-enriched plant-based diets can improve gut health in cultured *Channa striata*.

Keywords: Bacterial Diversity, *Channa striata*, DDGS, Gut Microbiota, Probiotic