BIOFLOCS FISH FARMING

TOWARDS SUSTAINABLE AQUACULTURE PRACTICES

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Preface

The main topic of this book is about the possibility of using dried bioflocs as a dietary supplement for red hybrid tilapia. This book is divided into six chapters. Chapter 1 includes a general background of the topic. The definition of biofloc technology (BFT) and its role in achieving sustainability are described in this chapter. This chapter also contains the current state of the art of the topic discussed and problems facing by the aquacultre sector.

Chapter 2 is the in depth information of the topic. In this chapter, an overview of previous studies on BFT in the period 1990-2020 was provided, distinguishing by year, area, and experimental organism. Economic aspects of BFT systems were discussed in this chapter. Recent studies of bioflocs as a dietary supplement for aquaculture was also reviewedition. Challenges and opportunities for implementing BFT systems were summarized at the end of this chapter.

Chapter 3 shows the framework of the bioflocs technology applied in the aquaculture sector. The whole work of the present book was divided into two phases. In the first phase, the effects of two bioflocs sources (tilapia waste and shrimp waste) and two drying methods (freeze-drying and oven-drying) on the proximate chemical composition of dried bioflocs were discussedition. Dried bioflocs derived from a tilapia source and produced by freeze-drying and oven-drying methods were evaluated as a dietary supplement at two different ratios: 4% and 16% for water quality, growth performance and body composition of red hybrid tilapia in a 57-days fish feeding trial (the second investigation).

Chapter 4 provides information on the effects of two sources of bioflocs and two drying methods on the proximate chemical composition of bioflocs and the results from the second investigation of the effect of dried bioflocs as a dietary supplement for water quality, growth performance, and body composition of red hybrid tilapia. The chapter explains the multiple comparisons of proximate composition (in terms of crude protein, crude lipid, total ash, crude fiber, nitrogen free extraction, and gross energy), amino acid profiles, and mineral profiles (expressed as g/100 g, mg/g or mg/kg dry weight bioflocs) of four groups of dried

bioflocs derived from two bioflocs sources (shrimp waste and tilapia waste) and produced by two different drying methods (freeze-drying and oven-drying). While the results from the second investigation were presented in daily and weekly changes in water quality parameters and growth indicators during the 57 days of fish feeding trial, followed by the proximate composition of bioflocs, experimental diets, and the initial and final body composition of tilapia. The means of water quality parameters, growth indicators and proximate composition for the five experimental treatments were also presented and compared in this chapter.

Chapter 5 is the discussion of results from the first investigation, followed by the discussion of results from the second investigation. In this chapter, the results are compared to other results from previous studies, and to standard levels of water quality parameters, nutritional requirements, and growth indicators for tilapia culture. In addition, many clarifications, justifications, and evidence were added in this chapter to support the findings of the present book.

Chapter 6 is the conclusion of the whole book. This chapter provides a summary of the book's findings, contribution, and limitation. Based on the book's findings, several recommendations and suggestions are provided at the end of this chapter for further investigation.

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