UNIVERSITI PUTRA MALAYSIA

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153338

This project report is submitted in partial fulfillment of the requirement of the degree of Bachelor of Agriculture (Aquaculture)

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CERTIFICATION OF APPROVAL

DEPARTMENT OF AQUACULTURE

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This is to certify that I have examined the final year project report and all corrections have been made as recommended by the panel of examiner. This report complies with the recommended format stipulated in the AKU 4999 project guidelines, Department of Aquaculture, Faculty of Agriculture, Universiti Putra Malaysia.

Signature and official stamp of supervisor:

_____

En Abdullah Abd Rahim

Date:

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ABSTRAK

Kekeruhan tanah liat adalah salah satu aspek yang kurang dikaji dalam bidang akuakultur, sama ada untuk ikan atau udang. Kajian ini telah dijalankan untuk mengetahui kesan kekeruhan tanah liat yang berbeza pada pertumbuhan *Litopenae us vannamei* dalam tempoh 4 minggu. Kekeruhan tanah liat telah ditentukan pada tahap bermula dari 0 mg/L, diikuti oleh 50 mg/L, 100 mg/L dan 200 mg/L dengan 200 ekor udang ditempatkan di dalam setiap tangki. Setiap rawatan mempunyai empat replikasi. Analisis telah dilakukan menggunakan ANOVA diikuti oleh ujian julat berganda Duncan (P=0.05). Peningkatan tahap kekeruhan tanah liat sehingga 200 ppm tidak memberi kesan buruk kepada pertumbuhan udang. Nilai NTU, dalam tempoh kajian, mencatatkan trend yang meningkat. Kajian seterusnya disyorkan untuk memastikan keputusan dari penyelidikan ini.

ABSTRACT

Clay turbidity has been one of the least-studied aspects in the field of aquaculture, whether it is on fish or shrimp. This study was conducted to find out the effect of different clay turbidity on the growth of *Litopenaeus vannamei* in a period of 4 weeks. The clay turbidity was first determined at levels starting from 0 mg/L, followed by 50 mg/L, 100 mg/L and 200 mg/L with 200 pieces of shrimp per tank. Each treatment had four replicates. Analysis were done using one-way ANOVA followed by Duncan multiple range test, (P=0.05). Increased in the level of clay turbidity up to 200 mg/L did not adversely affect the growth performance of shrimp. NTU values, as the experiment progressed, recorded an uptrend. It was recommended that further studies to be conducted to further ascertain the findings of this study.

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LIST OF ABBREVIATIONS AND SYMBOLS

ppt	Parts per thousand
ppm	Parts per millio
mg/L	Milligram per liter
pH	Potential Hydrogen
°C	Degree Celcius
%	Percent
km	Kilometer
cm	Centimeter
L	Liter
SW	Seawater
am	Ante meridiem
pm	Post meridiem
ml	Milliliter
FCR	Food Conversion Ratio
NTU	Nephelometric Turbidity Unit
SPSS	Statistical Package for The Social Sciences
SGR	Specific Growth Rate
UPM	Universiti Putra Malaysia

CHAPTER 1

INTRODUCTION

Litopenaeus vannamei, formerly known as *Penaeus vannamei* (Boone, 1931; ITIS, 2004) originates from the western pacific coast of Latin America, from Peru in the south up to Mexico in the north (Briggs *et al*., 2004). It was introduced in a commercial scale into Asia in 1996, starting from Mainland China and Taiwan Province of China and subsequently spread to other Asian countries including Malaysia. *Litopenaeus vannamei* was brought into Asia mainly because it was less susceptible to disease in comparison with *P. monodon* (Briggs *et al*., 2004).

Litopenaeus vannamei, together with *Penaeus stylirostris*, are the two most preferred species for consumption in the world's largest shrimp market - United States of America (FAO, 2004). In terms of supply, production of *L. vannamei* has been increasing since 1980, as shown in Fig. 1 (FAO, 2012).

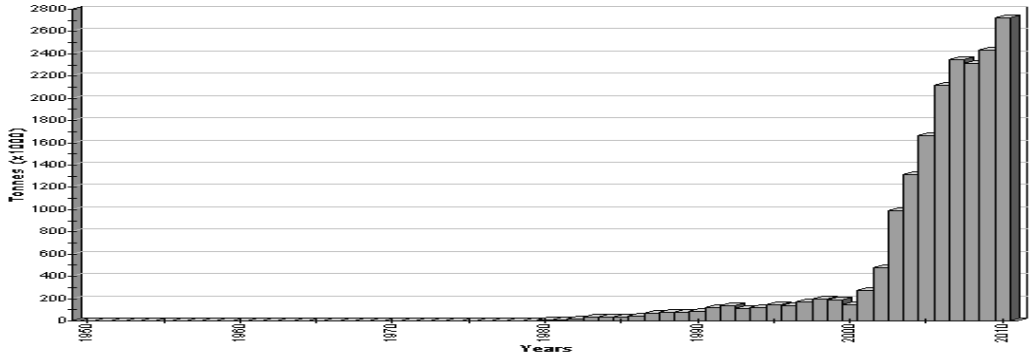

Figure 1. World Production of *Litopenaeus vannamei* (Source: FAO, 2012)

Phytoplankton and suspended soil particle are two major sources of turbidity in shrimp ponds (Boyd, 1989) while management activities, such as aeration, seining and feeding are likely to heighten the level of turbidity. Report on the Pandalus shrimp's response to DO, salinity and turbidity highlighted one of the few studies on relationship of shrimp and turbidity (Chiba *et. al.*, 2004).

Lin *et al.* (1992) indicated that turbidity originating from suspended sediments remains one of the least-studied aquatic factors even though it was often encountered in natural environments. Studies on the effect of clay turbidity on *L. vannamei* post larvae were few and far between, further highlighting the importance of this study. Therefore, this study was established to address the following objectives:

i. To determine the effect of clay turbidity on the growth of *L. vannamei* post larvae.
ii. To investigate water quality parameters associated with the different turbidity levels.

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