



UNIVERSITI PUTRA MALAYSIA

***THE EFFECT OF MALACHITE GREEN TREATMENT
ON THE HEMATOLOGICAL PARAMATER OF JADE PERCH***

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**THE EFFECT OF MALACHITE GREEN TREATMENT
ON THE HEMATOLOGICAL PARAMETER OF JADE PERCH**

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It is hereby certified that I have read this project paper entitled “The Effect Of Malachite Green Treatment On The Hematological Paramater Of Jade Perch”, by Hasni Nabilah Binti Yaacob and in my opinion it is satisfactory in terms of scope, quality and presentation as partial fulfillment of the requirement for the course VPD 4999 – Project.

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DEDICATION

To:

My family especially to my beloved mother, Shamsiah Mohd Zain who taught me about life



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ABSTRACT**The Effect of Malachite Green Treatment on the Hematological Parameter of
Jade Perch (*Scortum barcoo*)****By****Hasni Nabilah Binti Yaacob****2017****Supervisor: Dato' Dr Mohamed Shariff Bin Mohamed Din**

Malachite green (MG) is extensively used as an antiprotozoal and antifungal agent in the aquaculture industry. Since MG is toxic, the present study was conducted to investigate the effect of MG on the hematological parameter of jade perch (*Scortum barcoo*). Sixty jade perch were divided into control and two treatment groups; one immersed in MG for bath at 0.5mg.l^{-1} daily changed for 5 days maintaining the same concentration and another treated for a single dip at 66.7mg.l^{-1} for 30 seconds. For all groups, blood was collected on day 0, 1, 5, 7, 11, 13, 15, 19, and 21 for hematological parameters (RBC count, hemoglobin, PCV, MCV, MCHC, and WBC). Analysis of hematological parameter using T-test for dip treatment showed significant difference on PCV, MCHC and WBC while for bath treatment significant difference seen on PCV, RBC, MCHC, and WBC. However, there was no general trend seen in these changes. Fish given bath treatment showed

reddening of pectoral and caudal fin, petechial hemorrhage on the body, erratic swimming and anorexia during exposure to MG. In conclusion, although there were some significant differences of hematological parameter there was no obvious general trend. However, the clinical signs seen in bath treatment indicate that the fish were under stress.

Keywords: Jade Perch, malachite green, dip, bath, hematological parameter.

ABSTRAK**Kesan Malachite Green pada Hematologikal Parameter dalam Jade Perch
(*Scortum barcoo*)****Disediakan oleh****Hasni Nabilah Binti Yaacob****2017****Penyelia: Dato' Dr Mohamed Shariff Bin Mohamed Din**

Malachite green (MG) telah menjadi satu bahan kimia yang biasa digunakan dalam akuakultur sebagai agen anti-protozoa dan anti-fungal. Memandangkan MG merupakan bahan toksik, kajian dijalankan untuk mengkaji kesan MG pada hematologikal parameter dalam jade perch (*Scortum barcoo*). Enam puluh ekor jade perch dibahagi kepada kumpulan kawalan, kumpulan rawatan dengan MG mandian pada kepekatan 0.5mg.l^{-1} selama 5 days and satu rawatan rendaman pada kepekatan 66.7 mg.l^{-1} selama 30 saat. Kesemua sampel daripada setiap kumpulan diambil pada hari 0, 1, 5, 7, 11, 15, 19, and 21 untuk mengkaji hematologikal parameter (RBC count, hemoglobin, PCV, MCV, MCHC, and WBC). T-Test digunakan dan terdapat keputusan ketaradalam kumpulan rawatan rendaman PCV, MCHC dan WBC. Manakala kumpulan rawatan mandian menunjukkan keputusan ketara dalam parameter PCV, RBC, MCHC dan WBC. Walaubagaimanapun, tiada trend umun yang diperolehi daripada perubahan tersebut. Kumpulan ikan rawatan mandian menunjukkan tanda klinikal kemerahan pada sirip pectoral dan caudal, bintik-bintik kemerahan pada badan, berenang secara tidak menentu dan anoreksia

semasa didedahkan dengan MG. Konklusi, walaupun terdapat beberapa perubahan ketara dalam hematologikal parameter, tiada perubahan umun yang jelas. Walaubagaimanapun, tanda klinikal yang terdapat dalam kumpulan rawatan mandian menunjukkan ikan berada dalam keadaan stress.

Kata Kunci: Jade Perch, Malachite Green, rawatan rendaman, rawatan mandian, hematological parameter.

1. INTRODUCTION

1.1 Study background

Jade perch (*Scortum barcoo*) is a new favored freshwater fish used in aquaculture industry especially in Asian countries such as China, Hong Kong, Singapore and Malaysia (Real, 2011; Gao, 2014; FAO, 2014; Lim, 2015). As the industry continues to bloom, the farmers have been using malachite green (MG) to control and treat diseases that are commonly found in aquaculture. This chemical has been used in the aquaculture industry as an antifungal and antiprotozoal agent (Culp & Beland, 1996; Srivastava et al., 2004; Srivastava et al., 2016). However, the usage of MG has been of great concerned due to its toxicity. A study on the use of MG to treat fish showed a detrimental effect on the hematological parameter in freshwater catfish *Heteropneustes fossilis* when compared to the treatment with other alternative drug such as Pyceze (Srivastav & Roy, 2015). In addition, El-Neweshy et al.,(2011) also showed that the long term exposure to MG was able to induced anaemia and leukopenia in *Oreochromis niloticus*.

1.2 Justification

Malachite green has been commonly used in jade perch culture (Sambell, 2000) and as yet no study has been done on the effect of MG on the hematological parameter of jade perch. Therefore, this study was conducted using MG on jade perch to provide valuable data on the hematological parameter after treatment with MG.

1.3 Objective

Objective of this study:

- I. To study the effect of MG treatment on the hematological parameter of jade perch.
- II. To establish a preliminary hematological database reference for jade perch.

1.4 Hypothesis

- I. Null hypothesis: There will be no significant changes of the hematological parameter after jade perch is treated with MG.
- II. Alternative hypothesis: There will be significant changes of the hematological parameter after jade perch is treated with MG.

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