EFFECT OF AMMONIA EXPOSURE ON HATCHABILITY AND SURVIVAL OF *Clarias gariepinus* LARVAE

By
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the requirement for the degree of
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BORANG PITA 8

FAKULTI AGROTEKNOLOGI DAN SAINS MAKANAN
UNIVERSITI MALAYSIA TERENGGANU

PENGAKUAN DAN PENGESAHAN LAPORAN PROJEK ILMIAH I DAN II

Adalah ini diakui dan disahkan bahawa laporan ilmiah bertajuk:

Kesan Pendedahan Ammonia kepada Penetasan dan Ketahanan Larva *Clarias gariepinus*

(Effect of Ammonia Exposure on Hatchability and Survival of *Clarias gariepinus* Larvae)

oleh Ahmad Sajiddin bin Azmi, No.Matrik UK 14487 telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Perikanan dan Akuakultur sebagai memenuhi sebahagian daripada keperluan memperolehi Ijazah Sarjana Muda Sains Agroteknologi (Akuakultur), Fakulti Agroteknologi dan Sains Makanan, Universiti Malaysia Terengganu.

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DECLARATION

I hereby declare that the work in this thesis is my own expect for quotations and summaries which have been duly acknowledged.

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ABSTRACT

This study aims to reveal the effect of ammonia on egg hatchability and larval survival of *Clarias gariepinus* was undertaken. Egg and larvae *Clarias gariepinus* was exposed to ammonia at different concentration of 0.1, 1, 10, 100, 300, 560 and 1000 ppm for hatching time. IC_{50} of the hatchability of *Clarias gariepinus* larvae was 281.01 ppm. Egg development was absolved and picture for every hour was taken to discus different development in different concentration. The parameter is mortality of egg hatching after exposed on ammonia concentration. The ammonia pre-exposure finding indicated that ammonia effect the time to hatch delayed 3 hours compare with control. Clear symptoms of ammonia were indicated by egg development every hours observations. That because ammonia decrease the dissolve oxygen for embryo development. Larvae *Clarias gariepinus* can survive on high ammonia 100ppm concentration because the larvae were maintained 10 days on 10ppm. The finding of this study indicates that *Clarias gariepinus* hardy compare with other species after expose on high ammonia concentration.

ABSTRAK

Kajian ketahanan kepada perkembangan telur dan larva ikan keli afrika (*Clarias gariepinus*) selepas didedahkan kepada ammonia. Telur dan larva *Clarias gariepinus* telah didedahkan kepada kepekatan ammonia berbeza 0.1, 1, 10, 100, 300, 560 dan 1000ppm sampai masa menetas. IC_{50} penetasan bagi Clarias gariepinus ialah 281.01 ppm. Perkembangan telur telah diperhatikan dan diambil gambar untuk setiap jam perkembangan bagi membincangkan perbezaan perkembangan setiap kepekatan ammonia. Parameter melibatkan mortaliti telur menetas selepas didedahkan pada kepekatan ammonia. Ammonia telah menyebabkan kelambatan telur untuk menetas selamaa 3 jam ammonia berbanding dengan kawalan iaitu 24 jam. Kesan ammonia telah dikenalpasti dalam perkembangan setiap jam pemerhatian. Ini disebabkan ammonia telah mengurangkan pengambilan oksigen untuk telur berkembang. Walaubagaimanapun larva *Clarias gariepinus* boleh tahan pada kepekatan ammonia yang tinggi kerana ia telah didedahkan pada 10ppm selama 10 hari sebelum ia didedahkan pada kepekatan 100pm. Penemuan dalam kajian ini menunjukkan *Clarias gariepinus* lebih tahan berbanding ikan lain selepas didedahkan pada kepekatan ammonia yang tinggi.