

DETERMINATION OF ARGININE VASOTOCIN (AVT)
AND VASOTONIN (V) IN PLASMA OF THE RED
TILAPIA (*Oreochromis niloticus*) IN TWO DIFFERENT
CALCIUM CONDITION

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DETERMINATION OF ARGININE VASOTOCIN (AVT)
AND ISOTOCIN (IT) IN PLASMA OF THE RED
TILAPIA (*Oreochromis niloticus*) IN TWO DIFFERENT
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SALINITY CONDITION

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JABATAN SAINS SAMUDERA
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PENGAKUAN DAN PENGESAHAN LAPORAN
PROJEK PENYELIDIKAN I DAN II

Adalah dengan ini diakui dan disahkan bahawa laporan projek penyelidikan bertajuk : **Penentuan Paras Hormon Arginine Vasotocin (AVT) dan Isotocin (IT) pada Plasma Ikan Tilapia *Oreochromis niloticus* dalam Dua Saliniti Berlainan** oleh Khairul Firdaus Kamarudin, No. Matrik UK6777 telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Samudera sebagai memenuhi keperluan memperoleh Ijazah Sarjana Muda Sains Biologi Marin Fakulti Sains dan Teknologi, Kolej Universiti Sains dan Teknologi Malaysia.

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ABSTRACT

There were two types of experiments that were conducted in this study. First one is to determine the AVT (Arginine Vasotocin) and IT (Isotocin) in the plasma of the Tilapia, *Oreochromis niloticus* fish. Second experiment is to determine the amount of AVT and IT in the plasma and obtain the different levels of AVT and IT in different salinity. Result shows that there is AVT and IT neurohypophysial hormones in plasma of the Tilapia and from the effect of salinity graph, the conclusion is AVT and IT levels were increasing with respect of higher salinity. It is also concluded that AVT and IT were playing a role in osmoregulation of fish. The higher the salinity, the higher levels of AVT and IT were obtained but the level will maintain at the static state when reaching its maximum value. For example, 50 ng/ml of standard AVT and IT are used, maximum of nearly 50 ng/ml of endogenous AVT and IT levels were obtained from the Tilapia's plasma. As a conclusion, AVT and IT levels are increasing with respect of salinity and AVT and IT hormones are playing their role in fish osmoregulation. It was also concluded that Tilapia fish can survive in marine water at salinity of 27 ppt for approximately 5 hours.

ABSTRAK

Terdapat dua jenis eksperimen yang dijalankan dalam kajian ini. Eksperimen yang pertama ialah untuk menentukan kehadiran hormon AVT (Arginine Vasotocin) dan IT (Isotocin) di dalam plasma ikan Tilapia, *Oreochromis niloticus*. Eksperimen kedua ialah berkaitan dengan penentuan nilai AVT dan IT dalam plasma dan mendapatkan tahap hormon AVT dan IT yang berlainan di dalam keadaan saliniti yang berbeza. Keputusan menunjukkan bahawa terdapat hormon AVT dan IT di dalam plasma ikan Tilapia dan daripada graf kesan saliniti, kesimpulannya ialah tahap AVT dan IT meningkat berpandukan saliniti yang semakin meningkat. Ini juga menunjukkan bahawa AVT dan IT memainkan peranan dalam sistem osmoregulasi ikan. Semakin meningkat saliniti, tahap AVT dan IT semakin meningkat tetapi ia akan kekal pada satu tahap ketika sampai ke nilai maksimum. Sebagai contoh, apabila 50 ng/ml larutan piawai AVT dan IT digunakan, nilai maksimum yang diperolehi daripada AVT dan IT plasma adalah hampir kepada nilai AVT dan IT piawai. Sebagai kesimpulan, paras hormon AVT dan IT adalah berkadar terus dengan dengan peningkatan saliniti dan AVT dan IT memainkan peranan dalam sistem osmoregulasi ikan. Dapat juga disimpulkan bahawa ikan Tilapia boleh hidup di dalam keadaan air masin selama kira-kira 5 jam.