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REPRODUCTIVE BEHAVIOUR OF THE OCEANIC SPOTTED SEAHORSE
Hippocampus kuda IN CAPTIVITY

By

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PENGAKUAN DAN PENGESAHAN LAPORAN PROJEK PENYELIDIKAN I DAN II

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk:

Reproductive behaviour of the oceanic spotted seahorse, *Hippocampus kuda* in captivity oleh Loo Pei Chek, UK 6756 telah diperiksa dan semua pembedaan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Samudera sebagai memenuhi sebahagian daripada keperluan memperoleh Ijazah Sariana Muda Sains (Biologi Marin), Fakulti Sains dan Teknologi, Kolej Universiti Sains dan Teknologi Malaysia.

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LIST OF ABBREVIATIONS

| | |
|-----------------|----------------------|
| min | minutes |
| sec | seconds |
| cm | centimeters |
| g | grams |
| p | probability |
| ANOVA | analysis of variance |
| ppt | parts per thousands |
| ⁰ C | degree Celsius |
| % | percentage |
| mg/L | milligram per liter |
| SD | standard deviation |
| SE | standard error |
| SS | sum of square |
| df | degree of freedom |
| 1 st | first |
| 2 nd | second |
| 3 rd | third |

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ABSTRACTS

The reproductive behaviour of oceanic spotted seahorses *Hippocampus kuda* was observed in this study. These included greeting and courtship behaviours in all the three pairs of seahorses. The three pairs of seahorses required 32 days, 27 days and 34 days for pairing respectively. The female seahorses were significantly smaller than male seahorses, with an average of 16.4 ± 0.93 cm in females and 17.3 ± 0.85 cm in males (Student t-test: $t=2.48$, $p<0.05$, $df=8$). The males were heavier than the females where average wet weight of males were 10.16 ± 0.85 g while females were only 7.58 ± 0.49 g ($t=3.56$, $p<0.05$, $df=8$). There was significant difference between the three pairs of seahorses in greeting (min) (ANOVA, $p<0.05$, $df=83$). The greeting (min) per frequency in first, second and third pairs of seahorses were 3.53min, 4.09min and 4.28min respectively in 29, 42 and 13 days of observation. The first pair of seahorses had the highest mean frequency of greetings, 15.76 ± 7.81 times, followed by the second and third pair of seahorses, 6.83 ± 8.39 times and 5.46 ± 6.92 times respectively. Courtship phase 1 to phase 3 occurred while the phase 4 was absent in all the three pairs of seahorses. Phase 1 is characteristic with reciprocal quivering, phase 2 is female display pointing and male display pumping, phase 3 is both seahorses pointing. Duration for the female to prepare a new clutch of eggs was 12-13 days between the two batches of eggs that were produced in copulation attempts.

Tingkaahlaku reproduktif bagi kuda laut, *Hippocampus kuda* dalam kurungan

ABSTRAK

Tingkaahlaku reproduktif bagi kuda laut *Hippocampus kuda* telah diperhatikan dan dikaji. Ini termasuk 'greeting' dan tingkaahlaku mengawan dalam ketiga-tiga pasangan kuda laut. Ketiga-tiga pasangan kuda laut mengambil masa sebanyak 32 hari, 27 hari dan 34 hari untuk berpasangan. Betina adalah lebih kecil daripada jantan di mana mereka bersaiz 16.4 ± 0.93 cm dan 17.3 ± 0.85 cm secara signifikan masing-masing (Student t-test: $t=2.48$, $p<0.05$, $df=8$). Jantan adalah lebih berat daripada betina di mana jantan 10.16 ± 0.85 g dan betina 7.58 ± 0.49 g secara signifikan masing-masing ($t=3.56$, $p<0.05$, $df=8$). Pada masa berlaku 'greeting', ia didapati adalah berbeza dengan signifikan dalam ketiga-tiga pasangan kuda laut (ANOVA, $p<0.05$, $df=83$). 'Greeting' per kekerapan dalam ketiga-tiga pasangan kuda laut adalah 3.53min, 4.09min and 4.28min masing-masing dengan masa pemerhatian sepanjang 29, 42 and 13 hari masing-masing. Pasangan kuda laut pertama mempunyai purata kekerapan 'greeting' terbanyak iaitu, 15.76 ± 7.81 kali dan diikuti oleh kedua dan ketiga pasangan kuda laut masing-masing dengan 6.83 ± 8.39 kali and 5.46 ± 6.92 kali. Pengawanan berlaku dalam fasa 1 hingga fasa 3 manakala fasa 4 tidak berlaku kepada ketiga-tiga pasangan kuda laut. Fasa 1 adalah berciri bergentaran bersama kedua-dua kuda laut, fase 2 ialah betina menunjuk dan jantan melakukan pengecutan di bahagian perut, fasa 3 ialah kedua-dua kuda laut menunjuk. Tempoh masa untuk betina menyediakan kelompok telur yang baru adalah 12-13 hari.