

## ABSTRACT

*Macrobrachium rosenbergii* is known as giant freshwater prawns that is indigenous to the Indo West Pacific region. In Malaysia, the population of *M. rosenbergii* in the wild habitat has been gradually declining and aquaculture production for the species is still insufficient to full fill the demand. Thus, the study aim to determine the distribution *M. rosenbergii* in Malaysia and to evaluate the potential wild brood stock from natural population for aquaculture, to determine selected *in-situ* physicochemical water parameters in selected rivers and to record and access the trend of *M. rosenbergii* production (tonnes and RM values) from public water bodies and aquaculture development. Samplings were conducted from October 2013 until October 2015 throughout Peninsular Malaysia and Sarawak. Three replicate of selected water parameters including dissolved oxygen, temperature, pH, conductivity and turbidity were recorded in nine selected rivers. Samples were obtained with various fishing methods including cast net, fishing rod, three layer gill net and traditional fishing methods including *belat*, *selambau* and *bubu*. Meanwhile, the secondary data from Annual Fisheries Statistics, Department Fisheries Malaysia from year 1966 to 2014 was used to evaluate history and production of *M. rosenbergii* in Malaysia. A total of 1042 individuals *M. rosenbergii* with 244 individuals' of berried female, 442 individuals' non-berried females and 365 individuals' male were collected form the study area. Based on data analyses it recommended that the wild prawn from Muda River (Peninsular Malaysia) and Mupong River (Sarawak) has potential as future brood stock for aquaculture development, due to the outstanding brood stock characteristics in terms of total length, body weight, ovary weight, fecundity, egg size and condition factors.

The selected physicochemical water parameters show that there were significant differences ( $p < 0.05$ ) for all locations and results shows that the parameters taken were in the range that *M. rosenbergii* could survive. Moreover, the trend production of *M. rosenbergii* from public water bodies and aquaculture has shown states of Perak (21.47%) and Pahang (30.03%) as potential producer of the species. Nevertheless, the efforts of government hatcheries for fries stocking activities in public water bodies as well as to culturist are shown to be significant ( $df = 8$ ,  $t = -2.499$ ,  $p < 0.05$ ) to enhance the *M. rosenbergii* production. It is suggesting the aquaculture industries of *M. rosenbergii* needs to be diversified into other public water bodies including ex-mining lake, dam and other natural habitats in order to strengthen the industries for future demand.

**Keywords:** *Macrobrachium rosenbergii*, distribution, wild brood stock, aquaculture, public water bodies.

***Pemilihan Induk Berdasarkan Ciri Tertentu dan Penilaian Sosial Ekonomi Bagi  
Macrobrachium rosenbergii di Malaysia***

**ABSTRAK**

*Macrobrachium rosenbergii dikenali sebagai udang galah yang berasal dari kawasan Indo Barat Pasifik. Di Malaysia, populasi M. rosenbergii dihabitat liar semakin berkurangan dan pengeluaran akuakultur bagi spesies tersebut masih tidak mencukupi untuk memenuhi permintaan. Oleh itu, kajian ini bertujuan untuk menentukan taburan M. rosenbergii di Malaysia dan menilai induk udang liar yang berpotensi digunakan bagi keperluan akuakultur, mengenalpasti bacaan fizikokimia in-situ bagi kualiti air di sungai-sungai terpilih dan merekod serta mengakses trend pengeluaran M. rosenbergii (tan dan nilai RM) daripada pengairan awam dan industri akuakultur. Kegiatan pensemplan telah dijalankan pada Oktober 2013 sehingga Oktober 2015 yang meliputi Semenanjung Malaysia dan Sarawak. Tiga replikasi bacaan kualiti air seperti oksigen terlarut, suhu, pH, konduktiviti dan kekeruhan telah diambil bagi sembilan buah sungai terpilih. Pelbagai kaedah penangkapan sampel telah digunakan, termasuklah penggunaan jala, joran, pukut tiga lapis serta kaedah penangkapan secara tradisional seperti belat, selambau dan bubu. Selain itu, data sekunder daripada Statistik Perikanan Tahunan, Jabatan Perikanan Malaysia pada tahun 1966 sehingga 2014 telah digunakan bagi menilai sejarah dan pengeluaran M. rosenbergii di Malaysia. Sejumlah 1042 ekor M. rosenbergii yang terdiri daripada 244 ekor induk udang bertelur, 442 ekor induk udang tidak bertelur dan sejumlah 365 ekor induk jantan telah berjaya ditangkap. Berdasarkan analisis data, induk udang liar daripada Sungai Muda (Semenanjung Malaysia) dan Sungai Mupong (Sarawak) merupakan baka yang berpotensi untuk digunakan dalam*

*pembangunan akuakultur. Perkara ini disebabkan kedua-dua induk udang tersebut mempunyai nilai skor ciri yang tinggi termasuklah panjang, berat spesies, berat ovari, fekunditi, saiz telur and faktor kondisi spesies tersebut. Fisikokimia parameter air menunjukkan bahawa terdapat perbezaan signifikan ( $p < 0.05$ ) bagi kesemua lokasi. Hasil kajian menunjukkan bahawa bacaan parameter air yang diambil masih berada di dalam julat kebolehan *M. rosenbergii* untuk hidup. Selain itu, trend pengeluaran bagi *M. rosenbergii* daripada sumber pengairan awam dan akuakultur menunjukkan Perak (21.27%) dan Pahang (30.03%) sebagai negeri yang berpotensi tinggi terhadap pengeluaran spesies tersebut. Selain itu, usaha penambahan benih udang galah dipengairan awam serta bantuan pemberian benih udang kepada para penternak oleh kerajaan telah memberi impak yang berkesan ( $df = 8, t = -2.499, p < 0.05$ ) terhadap pengeluaran *M. rosenbergii*. Dicadangkan bahawa industri akuakultur *M. rosenbergii* mempelbagaikan penggunaan sumber pengairan awam termasuklah bekas lombong bijih timah, empangan dan habitat semulajadi yang lain bagi kepentingan keperluan pada masa hadapan.*

**Kata kunci:** *Macrobrachium rosenbergii, taburan, induk liar, akuakultur, perairan awam.*