

ANALYSIS ON MICROBIAL GENUSE CONTAMINATION AND  
COPPER RESIDUE DISTRIBUTION IN THE WATER OFF PASIR  
BANGUNG, PULAU PEDANG

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**A SURVEY ON NITROGEN, SEWAGE CONTINATION AND  
*CAULERPA SP* DISTRIBUTION IN THE WATER OFF PASIR PANJANG,  
PULAU REDANG**

**Nor Bee Bt. Hamidon**

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**FACULTY OF AGROTECHNOLOGY AND FOOD SCIENCE  
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## ABSTRACT

The fringing reefs around the Pulau Redang are the major tourism attraction which also important in restoring fish stock in the marine ecosystem. They are extremely sensitive to pollution. High concentration of nitrogen and untreated sewage can cause serious degradation of coral reefs. Nitrogen is the primary concerns of sewage and domestic discharges. A total of six sampling station were established along the coastal water off Pasir Panjang. Three sampling trip were conducted from July to October 2005. The highest concentration of ammonium, nitrate, nitrite and dissolved organic nitrogen were  $32.72 \pm 5.88 \mu\text{M}$ ,  $3.65 \pm 1.83 \mu\text{M}$ ,  $1.03 \pm 1.78 \mu\text{M}$  and  $0.82 \pm 0.42 \mu\text{M}$  respectively. Extra ordinary distribution of *Caulerpa* sp. was found in the study area. The *Caulerpa* sp. was extensively distributed during July and it is subsided during September and October. Most probable number of fecal coliform bacteria in September and October 280 MPN/100ml and 240 MPN/100ml respectively. High MPN indicated this show the coastal area slightly contaminated by sewage. Based on present study, the water quality level of nitrogen still in safety level. However, high MPN of fecal coliform indicates that, effluent from the anthropogenic impact is prevalent in the area.



## ABSTRAK

Karangan di sekitar Pulau Redang merupakan tarikan utama pelancong juga penting bagi membaikpulihan stok ikan di dalam ekosistem marin. Karang sangat sensitif terhadap pencemaran. Kepekatan tinggi nitrogen dan sisa kumbahan yang tidak dirawat akan menyebabkan kerosakan serius kepada karangan. Nitrogen merupakan kaitan rapat dengan sisa kumbahan dan pembuangan domestik. Enam stesen persampelan ditetapkan di pesisir pantai Pasir Panjang. Sebanyak tiga persampelan telah dijalankan dari bulan Julai hingga Oktober 2005. Kepekatan tertinggi bagi ammonium, nitrat, nitrit dan nitrogen organik terlarut dengan kepekatan masing-masing  $32.72 \pm 5.88 \mu\text{M}$ ,  $3.65 \pm 1.83 \mu\text{M}$ ,  $1.03 \pm 1.78 \mu\text{M}$  dan  $0.82 \pm 0.42 \mu\text{M}$ . Terdapat taburan luar biasa *Caulerpa sp.* di kawasan kajian. Taburan *Caulerpa sp.* ini tinggi pada bulan Julai dan semakin berkurangan pada bulan September dan Oktober. Nilai MPN untuk bakteria fecal coliform pada bulan September dan Oktober masing-masing adalah 280 MPN/100 ml dan 240 MPN/100 ml. Ketinggian nilai MPN menunjukkan pesisiran dicemari oleh sisa kumbahan. Berdasarkan kajian ini, kandungan nitrogen di pesisiran pantai dalam masih ditahap selamat. Walaubagaimanapun, ketinggian nilai MPN bagi bakteria fecal coliform adalah disebabkan oleh kesan aktiviti antropogenik di kawasan kajian.