

A STUDY ON THE ROOT SYSTEM OF *Avicennia marina*,  
*Avicennia officinalis* AND *Sonneratia alba*

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By

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## ABSTRACT

A comparative study on the pneumatophore density and soil characteristics for *Avicennia marina* and *Sonneratia alba* were conducted at Pulau Sekeping, Kemaman, Terengganu. Another study on the root system of *Avicennia officinalis* and *Sonneratia alba* was conducted at Tanjung Piai, Johore. One way ANOVA statistical test indicated that there are no significant differences in pneumatophore density index between *Avicennia marina* and *Sonneratia alba*. Higher pneumatophore density index is recorded towards the sea. There was a significant increase in pneumatophore height from landward to seaward. The average shear strength of sediment at the root area was 5.72 kPa and tend to increase with depth. Shear strength on the surface layer are the lowest in all samples while the highest soil strength are between 15 cm to 25 cm depth layers. The surface sediment of Pulau Sekeping was dominated by coarse sediment with average mean grain size of 4.93 phi (coarse silt). Standard deviation, skewness and kurtosis were 2.01 phi (poorly sorted), 0.28 (positive skewness), 2.25 phi (very leptokurtic) respectively.

## ABSTRAK

Satu kajian perbandingan ke atas kepadatan pneumatofor dan kriteria enapan untuk pokok *Avicennia marina* dan *Sonneratia alba* dijalankan di Pulau Sekeping, Kemaman, Terengganu. Kajian lain berkenaan dengan sistem akar pokok *Avicennia officinalis* dan *Sonneratia alba* dilakukan di Tanjung Piai, Johor. Ujian ANOVA sehala menunjukkan tiada perbezaan bermakna bagi indeks kepadatan pneumatofor di antara pokok *Avicennia marina* dan *Sonneratia alba*. Indeks kepadatan pneumatofor semakin meningkat ke arah laut. Terdapat peningkatan yang signifikan pada ketinggian pneumatofor ke arah laut. Purata kekuatan ricih untuk enapan di zon akar adalah 5.72 kPa secara keseluruhannya, dan cenderung untuk meningkat dengan kedalaman. Kekuatan ricih di permukaan adalah paling rendah manakala kekuatan ricih yang paling tinggi adalah pada lapisan kedalaman di antara 15 hingga 25 cm. Enapan permukaan bagi Pulau Sekeping dilitupi oleh enapan kasar dengan saiz putara 4.93 phi (kelodak kasar). Penyisihan, kepencongan dan kurtosis masing-masing adalah 2.01 phi (sisihan sangat tidak sempuran), 0.28 (kepencongan positif) dan 2.25 phi (sangat leptokurtik).