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**THE STUDY OF SPECIES ABUNDANCE AND ABOVEGROUND BIOMASS FOR  
AVICENNIA-SONNERATIA FOREST TYPE AT TOK BALI, KELANTAN**

**By**

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Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: THE STUDY OF SPECIES ABUNDANCE AND ABOVEGROUND BIOMASS FOR AVICENNIA-SONNERATIA FOREST TYPE AT TOK BALI, KELANTAN, oleh Elvy Eide, no. matrik: UK9190 telah diperiksa dan semua pembedaan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Biologi sebagai memenuhi sebahagian daripada keperluan memperolehi Ijazah Sarjana Muda Sains Gunaan-Pengurusan dan Pemuliharaan Biodiversiti, Fakulti Sains dan Teknologi, Kolej Universiti Sains dan Teknologi Malaysia.

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## LIST OF ABBREVIATONS

%	- per hundred
DBH	- Diameter Breast Height
E	- Species Evenness
H	- Height
ha	- hectare
kg	- Kilogram
S	- Species Richness
Stem/ha	- stem per hectare
AGB	- Aboveground biomass

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## ABSTRACT

The study focuses on studying the species composition, determine the diversity index and estimate the aboveground biomass for *Avicennia-Sonneratia* forest type in Tok Bali. *Avicennia-Sonneratia* forest type in Tok Bali is located at the estuary of Semerak River, in the district of Pasir Puteh, Kelantan. In this study, inventory data such as trees species, height, DBH, crown and stem form were recorded and 20 plots were build during the sampling process. The statistical analysis for diversity index were determine using PC-ORD statistical package version 3.0. The aboveground biomass was estimated using the allometric equation. Result from the inventory data indicated there are seven species of mangrove where six are exclusive mangroves and single species of mangrove associate with trees densities ranging from 10 to 1045 stem/ha. The exclusive mangroves are *Sonneratia alba*, *Avicennia alba*, *Rhizophora apiculata*, *Bruguiera cylindrica*, *Ceriops decandra* and *Aegiceras corniculatum*. The associate mangrove that happens to be appeared is *Finalysonia obovata*. The forest dominant species is *Sonneratia alba* (77.69%) are more dense in water edge. The distribution of sapling (5340 stem/ha) and seedling (89000 stem/ha) in this forest is higher than the distribution of mangrove stand (1280 stem/ha). The total aboveground biomass was 244.6825 stem/ha and the diversity value for mangrove stand was 1.441. The results indicate that the forest was less mature because the sapling densities are higher than the tree densities.

**KAJIAN TENTANG KELIMPAHAN SPESIES DAN BIOJISIM  
PERMUKAAN PADA HUTAN JENIS AVICENNIA-SONNERATIA DI TOK  
BALI, KELANTAN**

**ABSTRAK**

Kajian ini fokus keatas kajian tentang komposisi spesies, menentukan indeks diversiti dan menganggar biojisim permukaan tanah pada hutan jenis *Avicennia-Sonneratia* di Tok Bali. Hutan *Avicennia-Sonneratia* di Tok Bali terletak di muara Sungai Semerak, di daerah Pasir Puteh, Kelantan. Dalam kajian ini, data inventori seperti spesies pokok, tinggi, diameter pokok (DBH), bentuk kanopi dan batang direkodkan dan 20 plot telah dibina semasa proses 'sampling'. Analisis statistik keatas indeks diversiti ditentukan menggunakan 'PC-ORD statistical package version 3.0'. Biojisim permukaan dianggar menggunakan persamaan alometrik. Keputusan dari data inventori menunjukkan terdapat tujuh spesies bakau dimana enam spesies adalah 'exclusive mangrove' dan satu spesies 'mangrove associate' dengan julat densiti pokok dari 10 kepada 1045 pokok/ha. 'Exclusive mangrove' terdiri daripada *Sonneratia alba*, *Avicennia alba*, *Rhizophora apiculata*, *Bruguiera cylindrica*, *Ceriops decandra* and *Aegiceras corniculatum*. 'Mangrove associate' yang muncul adalah *Finalysonia obovata*. Spesies dominan di hutan ini iaitu *Sonneratia alba* (77.69%) lebih padat di tebing air. Taburan anak pokok (5340 pokok/ha) dan anak

benih (89000 pokok/ha) di hutan ini lebih tinggi berbanding dengan taburan pokok (1280 pokok/ha). Nilai biojisim permukaan adalah 244.6825 pokok/ha dan nilai diversiti bagi pokok bakau adalah 1.441. Keputusan menunjukkan hutan ini kurang matang kerana densiti anak pokok lebih tinggi berbanding dengan densiti pokok.