

Contribution of plant species to carbon sequestration function of mangrove ecosystem in Sri Lanka

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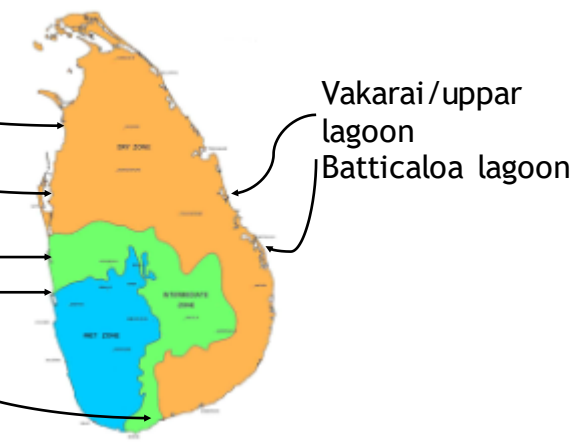
Objective – Quantify the organic carbon retention capacity of 13 mangrove species and ranking their location wise distribution to carbon sink association in Sri Lanka

Area selection

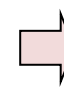


Dry zone
Batticaloa lagoon
Dry zone
Dry zone
Intermediate zone
Wet zone
Intermediate zone

Malwathu Oya estuary
Batticaloa lagoon
Kala Oya estuary
Batticaloa lagoon
Vakarai /Uppar lagoon
Chilaw lagoon
Negombo estuary
Rakawa lagoon



Conducted random field sampling in mangrove vegetation

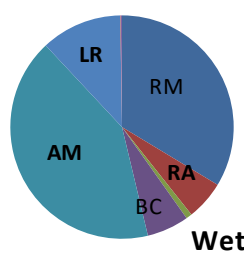


Determination of total organic carbon content (TOC)

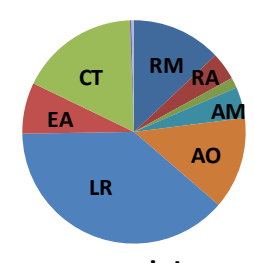


TOC retention capacity determined in species wise and area wise

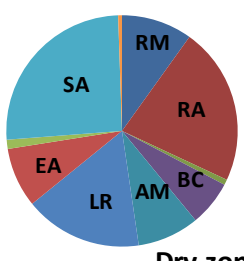
Species	TOC content (kg/kg biomass)		
	Wood	Leaves	Root
<i>Rhizophora mucronata</i>	0.562±0.002	0.504±0.000	0.546±0.003
<i>Rhizophora apiculata</i>	0.561±0.006	0.502±0.000	0.543±0.004
<i>Avicennia marina</i>	0.527±0.002	0.500±0.000	0.509±0.003
<i>Avicennia officinalis</i>	0.530±0.003	0.497±0.001	0.511±0.004
<i>Bruguiera gymnorrhiza</i>	0.549±0.003	0.512±0.002	0.529±0.003
<i>Bruguiera cylindrica</i>	0.529±0.001	0.485±0.002	0.518±0.002
<i>Lumnitzera racemosa</i>	0.557±0.001	0.441±0.002	0.543±0.003
<i>Excoecaria agallocha</i>	0.475±0.002	0.410±0.003	0.462±0.002
<i>Ceriops tagal</i>	0.549±0.002	0.481±0.002	0.535±0.003
<i>Aegiceras corniculatum</i>	0.502±0.002	0.494±0.006	0.497±0.004
<i>Sonneratia alba</i>	0.499±0.003	0.454±0.004	0.468±0.002
<i>Xylocarpus granatum</i>	0.551±0.009	0.473±0.004	0.510±0.006
<i>Pemphis acidula</i>	0.562±0.003	0.509±0.017	0.545±0.018



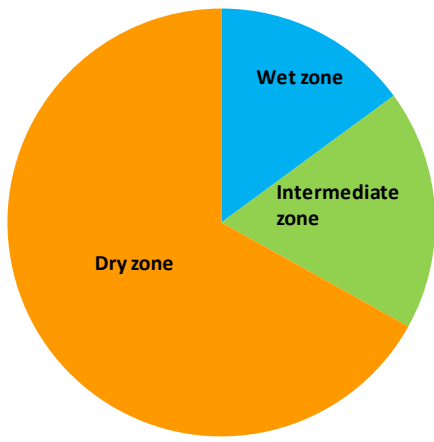
Wet zone



Intermediate zone



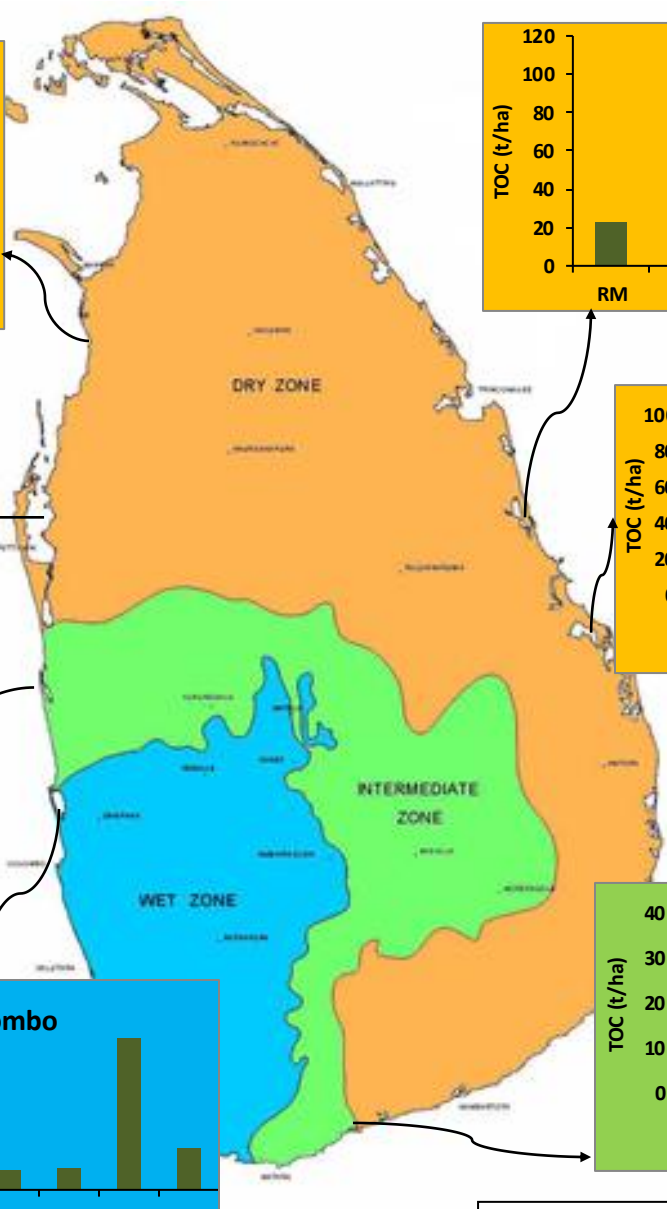
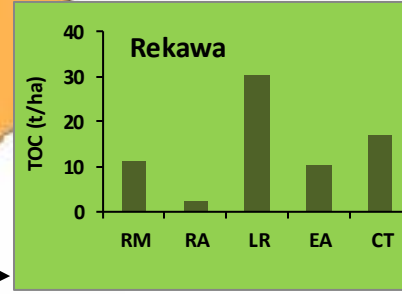
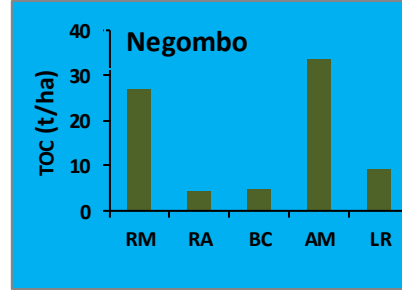
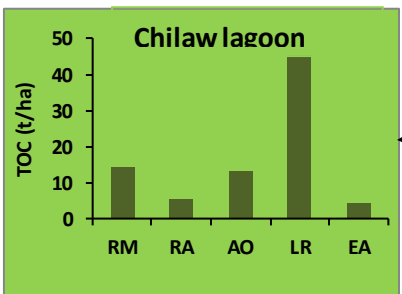
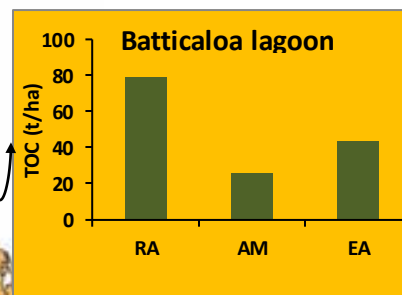
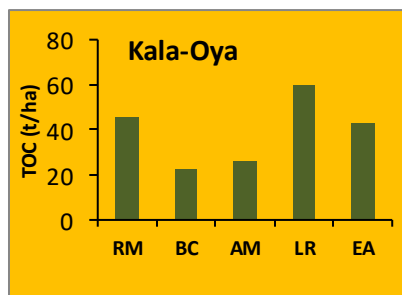
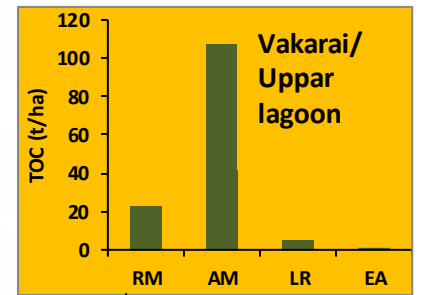
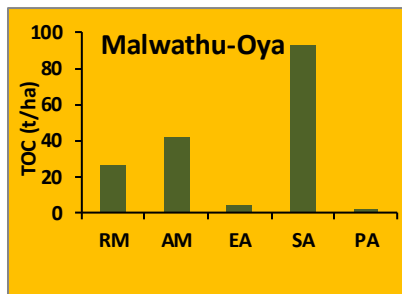
Dry zone



TOC retention by mangrove ecosystems in climatic zones of Sri Lanka

Plausible reasons for high TOC in dry zone mangrove ecosystems

- Low population pressure
- Low accessibility



Key – RM-*Rhizophora mucronata*, RA- *Rhizophora apiculata*, AM- *Avicennia marina*, AO- *Avicennia officinalis*, BC- *Bruguiera cylindrica*, LR- *Lumnitzera racemosa*, EA- *Excoecaria agallocha*, CT- *Ceriops tagal* SA- *Sonneratia alba*, PA- *Pemphis acidula*