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Characteristic and the potential usage of *Pandanus tectorius* Park. leaf bio-briquette

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Introduction
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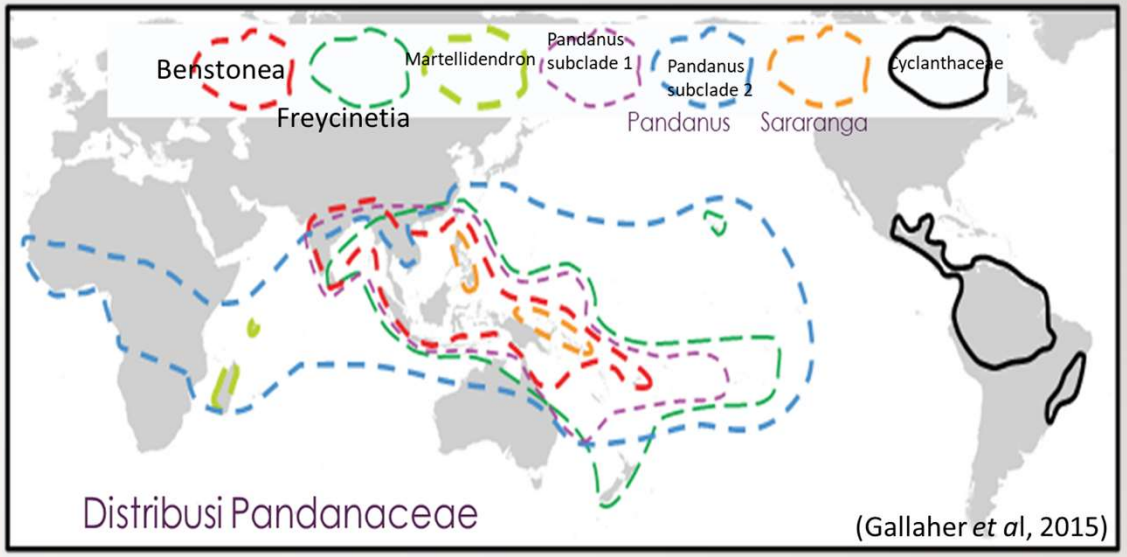
Introduction

Pandanus tectorius Park.



Tropical coastline plant (Pacific, Southeast Asia, Northern Australia)

Produce up to 18,72 kg fresh leaves per individual

P. tectorius Park. leaf bio-briquette

Low combustion; small flame (low energy)

Research goals

1. The formulation of bio-briquette made from *P. tectorius* Park. leaf with the binding agent tapioca starch and *Acacia mangium* bark powder
2. The potential usage of *P. tectorius* Park. leaf bio-briquette

Methods

August – October 2022

Forest Product Laboratory of Forestry Faculty of UNIPA

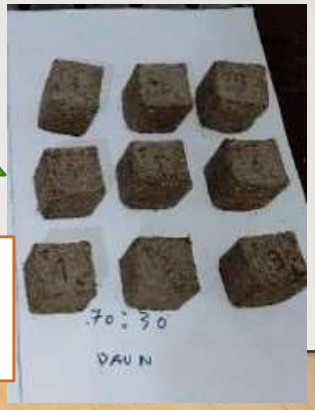
Materials

Leaves

Tapioca starch

A.mangium bark powder

Biomass (%)		Binding agent (%)	
		Tapioca	*A. mangium* bark
Leaf	70	15	15
	80	10	10



Mixing
Pressing/Compacting
Conditioning

Characteristic Briquette

Parameter	Formulation		Standard	Note
	70 : 30	80 : 20		
Moisture Content (%)	7.88	12.60		Max 8%
Density	0.68	0.66		
Swelling Thickness (%)				
1. 2 hours	131.95	112.75	SNI-01-6235-2000	
2. 24 hours	*	24.85 *		
Volatile Matter (%)	85.32	85.32		Max 15%
Ash Content (%)	2.67	2.65		Max 8%

Note: * samples were broken

Absorbent

Formulation		Δ Weight (g)	Absoption speed (ml/s0	Absoprtion (g/g)
Ink (water-based) ---- 10 gr water + 0.5 gr ink				
Leaf - tapioca	70 : 30	9.4	0.04	1.01
	80 : 20	7.4	0.03	1.00
Leaf – tapioca + *A. mangium* bark powder	70 : 30	7.4	0.1	0.99
	80 : 20	8.1	0.04	0.97
Used engine-oil (SAE 10W-40, 3000 km				
Leaf - tapioca	70 : 30	0.8	0.002	0.727
	80 : 20	0.8	0.003	0.533
Leaf – tapioca + *A. mangium* bark powder	70 : 30	0.9	0.002	0.652
	80 : 20	1.1	0.003	0.733

Note: samples were broken

Nano-particle briquette

The next activities

To develop methods and formulas to make *Pandanaceae* leaf briquette	Analysis the usage of *P.tectorius* Park. leaf briquette	The examination of forest product waste as natural binding agent

Thank You

@ The Pandanaceae team