

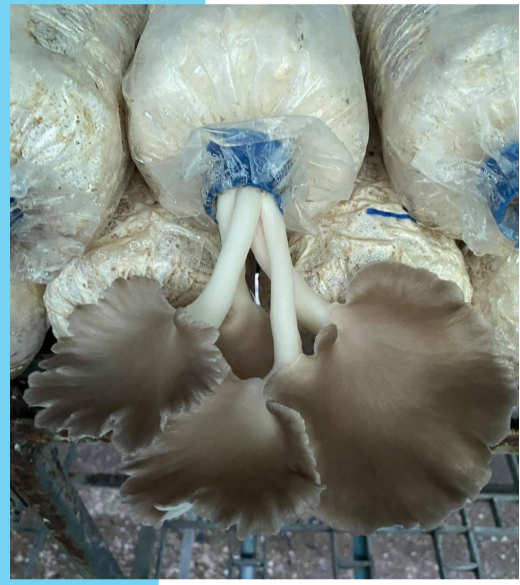
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Introduction



P. sajor-caju

Pleurotus sajor-caju (Fr.) Sing. has been extensively cultivated worldwide. It is a saprophytic fungus that grows on water-soaked forests, logs, trunks, and tropical tree stumps. Mushroom mycelium can produce enzymes on starch, fructose, sucrose, and ammonium chloride into small molecules adsorbing to the fungal cells [1].



O. citriodorum

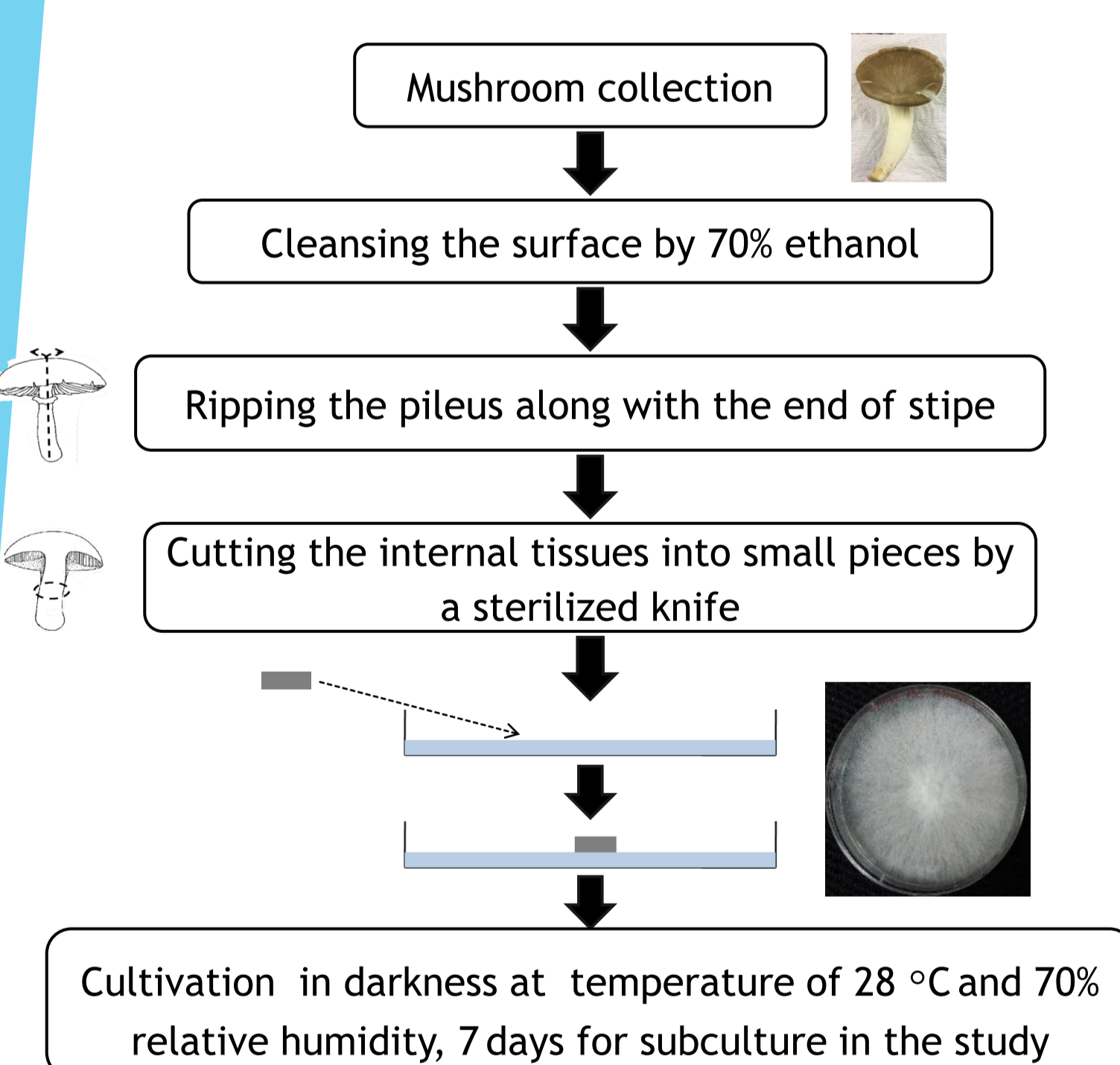
Lemon basil straw (*Ocimum citriodorum* Vis., LBS) is an agricultural waste and it was commonly eliminated by burning in the open field that impacts the climate. The LBS could be employed as the carbon source for microbials [2]. The bioconversion process by using the LBS as the alternative substrate or using the LBS water extract can persuade the farmer to reduce the burning of LBS.

This study aims to determine optimal LBS extracts for the mycelial growth of *P. sajor-caju* in solid and liquid culture media.

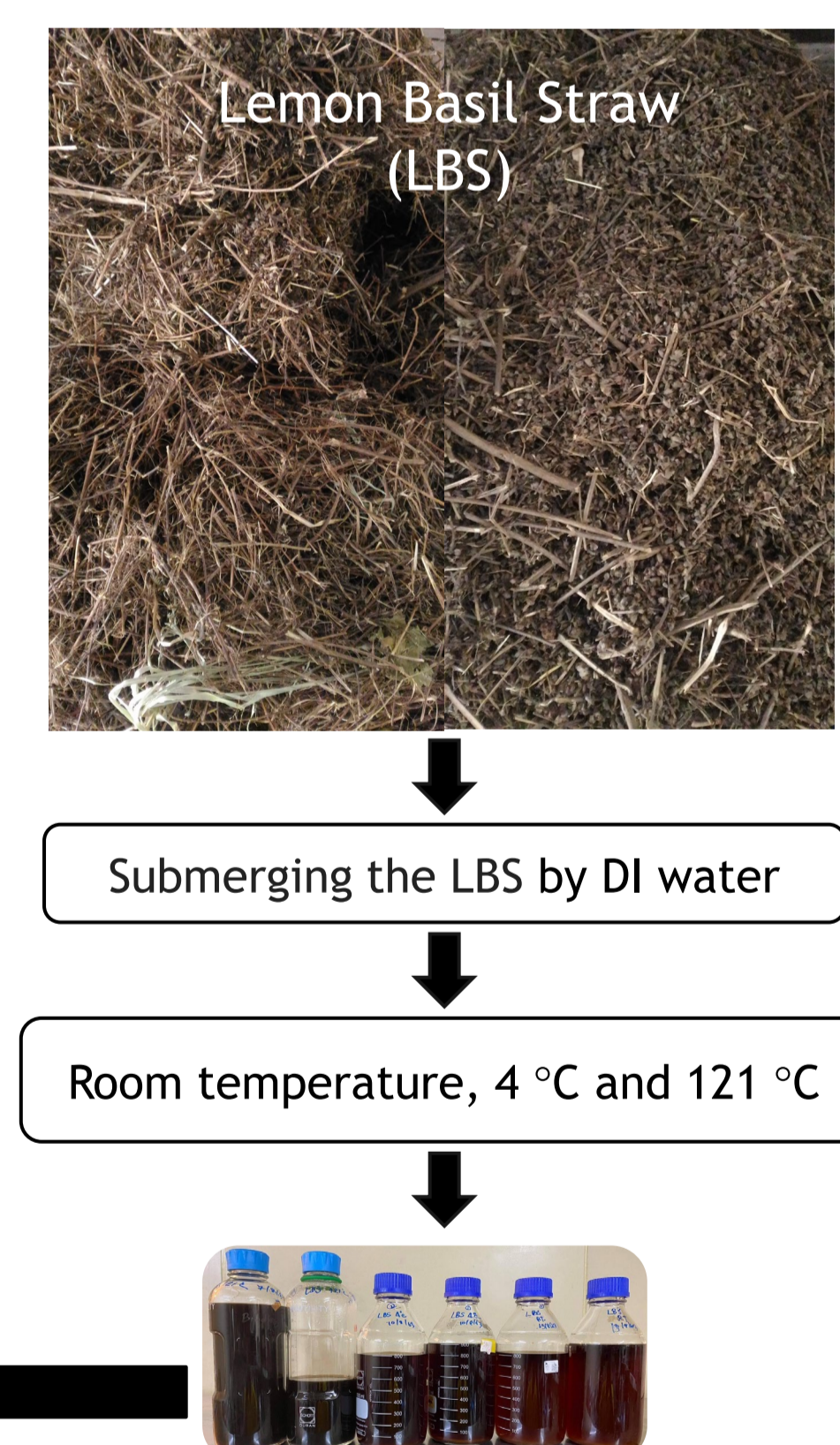
Materials And Methods

- ✓ Gray oyster mushrooms (*Pleurotus sajor-caju* (Fr.) Singer) were collected from a mushroom farm in Bangkok, Thailand.
- ✓ The dried lemon basil straw (LBS) were harvested from Sukhothai.

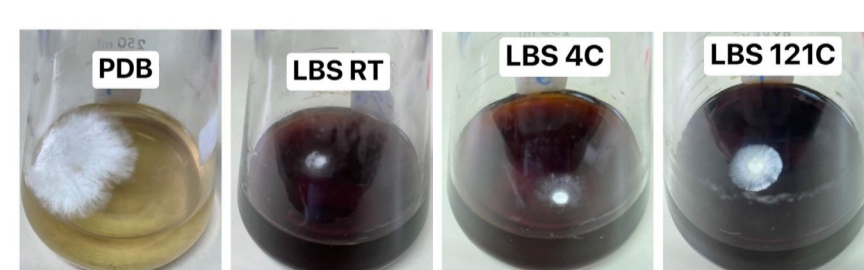
Mushroom isolation



Extraction method



Bioconversion



Mycelial growth on solid media



Mycelial production in liquid media (100 ml)



Results

➤ Mycelia cultivation on solid media

Table 1. Mycelial growth of *P. sajor-caju* on different solid media of LBS extracts at room temperature (32 ± 2 °C)

Treatment	Date and mean diameter of mycelial growth (cm)								Growth Rate (mm ² /day)	R ²
	2	3	4	5	6	7	8			
PDA+LBS RT	1.48i .03 ^a	2.20i .18 ^a	3.01i .50 ^a	3.33i .58 ^a	3.82i .64 ^a	4.43i .93 ^a	6.90i .80 ^a	12.92	0.8945	
PDA+LBS 121°C	1.17i .08 ^b	1.30i .23 ^c	2.13i .46 ^b	2.67i .47 ^b	3.73i .58 ^a	4.52i .27 ^a	6.87i .27 ^a	5.05	0.9157	
PDA+LBS 4°C	1.13i .08 ^b	1.50i .05 ^b	2.23i .38 ^b	2.45i .38 ^b	2.73i .42 ^b	3.83i .40 ^a	6.15i .62 ^a	6.96	0.8495	
PDA(Control)	0.97i .15 ^c	1.67i .15 ^b	1.92i .08 ^b	2.10i .10 ^b	2.50i .10 ^b	4.17i .29 ^a	6.37i .15 ^a	7.85	0.9351	
Total							6.57i .57	Sig.=.30		
Mean of Square (MS)							0.42	F=1.46	Error =.16	

* Significant difference ($p < .05$, DMRT)

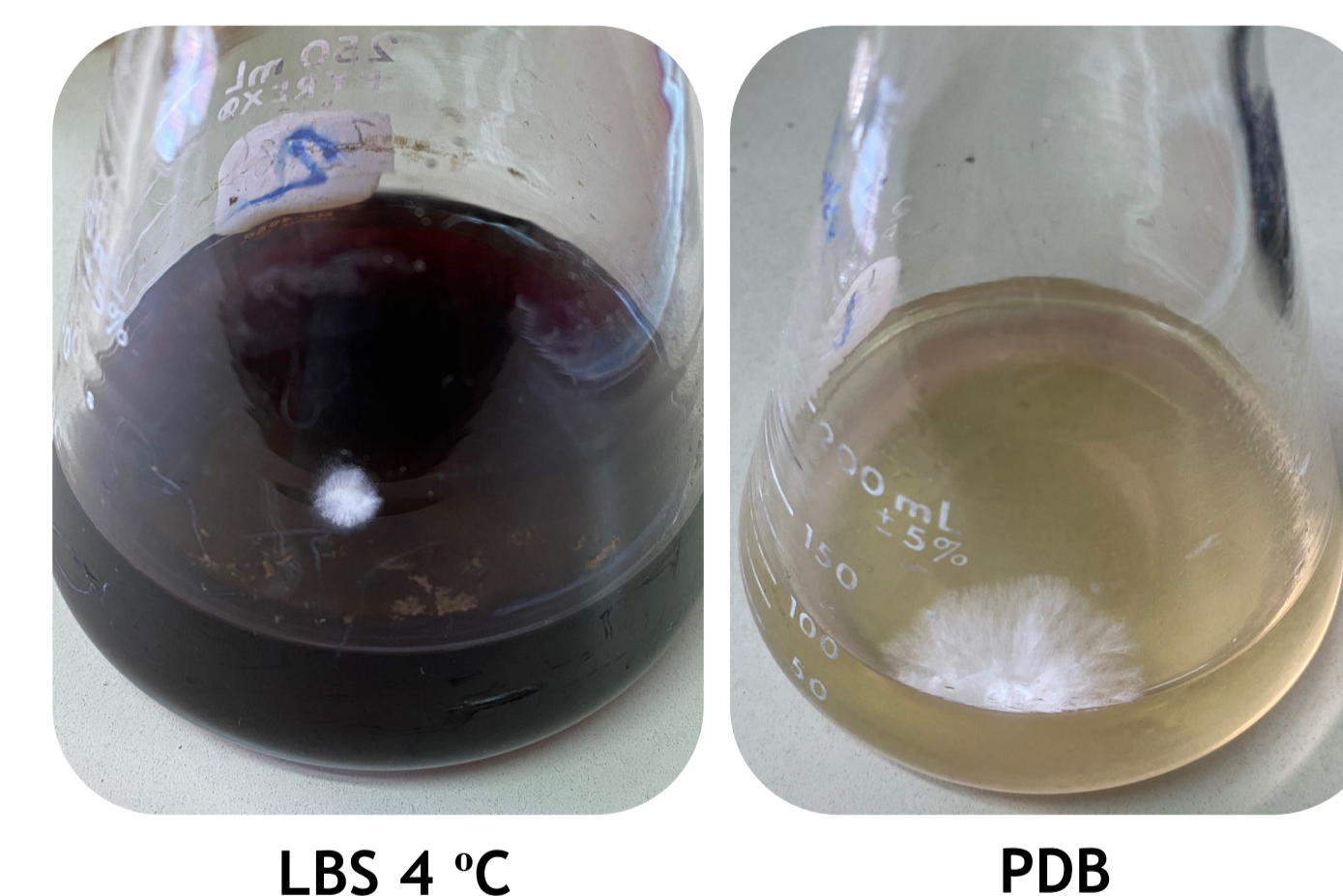
➤ Mycelial cultivation in liquid media

Table 2. Mycelia biomass and exopolysaccharides of *P. sajor-caju* on submerged condition based on LBS extracts for 10 days at 30 ± 2 °C

Media	Initial pH	Final pH	Fresh biomass (g/100 ml)*	Dried biomass (g/100 ml)*
PDB (control)	6.50	5.89	7.98i .22 ^a	0.54i .27 ^a
LBS RT	6.50	6.39	3.21i .12 ^c	0.12i .01 ^b
LBS 4°C	6.50	5.70	8.30i .17 ^a	0.35i .01 ^{ab}
LBS 121°C	6.50	6.48	5.10i .17 ^b	0.30i .02 ^{ab}
Total			6.15i 2.20	0.33i .20
F-test			*	*
%C.V.			35.83	60.61

* Significant difference ($p < .05$, DMRT)

➤ Scale-up for mycelial production (1 Liter)



- Temperature : 30 °C
- Agitation : 115 rpm
- Time : 10 days
- Initial pH : 6.5
- Shaking flasks: 100 ml x 10 flasks

Media	Mycelia Biomass (g/L)
PDB (control)	3.36
LBS (4 °C)	2.84

Conclusions

In the present work, *Pleurotus sajor-caju*'s mycelium could be grown on the media mixing with the LBS extracts. The LBS extracted in room temperature was represented to widely support the growth of the mushroom in solid medium. On the other hand, the LBS extracts was not suitable for submerged cultivation. Therefore, the LBS extracted in room temperature could be used to promote the mycelium growth in solid medium for industrial cultivation of *P. sajor-caju* in the future.

Acknowledgements

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References

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