

Bottle Cultivation of *Pleurotus ostreatus*, *Agrocybe aegerita* and *Ganoderma lucidum* using Rice hull media

Lee he-duck, Kim hong-kyu, Kim yong-gyun, Lee ga-soon
 Chungnam Agricultural Research and Service
 Taejeon 305-313 Korea Fax 042)822-6678 Tel 042) 820-5226

ABSTRACT

Rice hull was used as a additive in order to find the effect for increasing of mushroom growth and yield in Chungnam Provincial technical institution.

1. Treatment of 80% rice hull in small *Neutaribeosut* mycelial grow duration is shorter about 11 days and yield increased about 7% than conventional culture.
2. In case of Chongpung *Neutaribeosut* bottle culture, mycelial growth duration is shorter about two to three days in additive of 30 to 80% rice hull compared to conventional but yield similar to conventional.
3. Treatment of 30% rice hull in *Agrocybe aegerita* bottle culture, mycelial growth and yield increased 6days and 6% than convrnrtional, respectively
4. Treatment additived of 30% to 40% rice hull in *Ganoderma lucidum* bottle culture, similar to 45days demand in mycelial grow duration and 38g yield/bottle in conventioal culture methods.

結果要約

Table1. Chemical composition of *Pleurotus ostreatus* fruitbody using Rice hull

Treatment	T-N	O.M	T-C	P ₂ O ₅	K ₂ O	CaO	MgO	NaO	SiO ₂
Conventional	5.29	93.5	47.2	2.78	1.90	0.02	0.25	0.02	0.00
Ricehull 30%	6.22	92.0	46.5	3.72	2.49	0.02	0.30	0.03	0.00
Ricehull 50%	6.59	92.0	46.5	3.79	2.86	0.00	0.30	0.03	0.00
Ricehull 80%	6.55	92.4	46.7	3.99	3.07	0.00	0.30	0.03	0.00

Table 2. Effect on rice hull of *Pleurotus ostreatus* cultivation in 850cc PP bottle

Characteristics Treatment	Days to mycelial growth (Days/bottle)	Days to initiation primordium (Days)	Culture media weight (g/bottle)	Fruiting bundle (no/bundle)	Yield (g/bottle)	Index (%)	Recovery (%)
PS+W (8:2)	24	9	480	16	63	100	13
Ricehull 30%	21	7	450	17	65	103	14
Ricehull 50%	21	7	420	18	65	103	15
Ricehull 80%	21	5	360	22	68	107	19

* Conventional : Pine sawdust 80% + Wheat bran 20%

Table 3. Effect on rice hull of *Pleurotus ostreatus* Chongpung cultivation in 850cc PP bottle

Division	Days to mycelial growth (days/bottle)	Days to initiation primordium (days)	Fruiting bundle (no/bundle)	Size pileus (cm)	Length of stipe (cm)	Yield (g/bottle)	Recovery (%)
PS+W (8:2)	21	4	11	4.7	6.8	128	23
Ricehull 30%	19	4	12	4.0	5.5	115	22
Ricehull 50%	19	3	13	4.5	6.2	127	22
Ricehull 80%	18	4	8	3.7	5.0	98	23

* Conventional : Pine sawdust 80% + Wheat bran 20%

Table 4. Effect on Rice hull of *Pleurotus ostreatus* cultivation a farmhouse in Kongju

Culture time Division '99. 2	First '99. 4	Second '99. 8	Third '2000. 3	Fourth '2000.5	Fifth	Total	Average (%)	Index
PS+W (8:2)	120	125	118	115	99	577	115	100
PS+R+W(5:3:2)	132	163	186	155	124	760	152	132
PS+R+W(3:5:2)	128	161	198	173	147	807	161	140
R+W (8:2)	78	104	152	140	125	599	120	104
Average	115	138	164	146	124	-	138	-

* Conventional : Pine sawdust 80% + Wheat bran 20%

** PS: Pine sawdust, R: Rice hull, W: Wheat bran,

Table5. Effect on Rice hull of *Agrocybe aegerita* in 850cc pp bottle

Treatment	Days to mycelial growth(days/bottle)	Days to initiation Primordium(days)	Days to Growth duration(days/bottle)	Yield (g/bottle)
PS+W (8:2)	31	10	6	108 (100%)
PS+W+R (5:2:3)	25	6	5	115 (106%)
PS+W+R (3:2:5)	35	9	5	70 (65%)

* PS: Pine sawdust, W: Wheat bran, R: Rice hull

Table 6. Effect on Rice hull of *Ganoderma lucidum* cultivation In 2,000cc pp bottle

Treatment	Days to mycelial growth(days/bottle)	Days to initiation Primordium(days)	Days to Growth duration(days/bottle)	Yield (g/bottle)
QS+W (8:2)	45	20	36	38 (100)
QS+W+R (4:2:4)	47	20	36	36 (95)
QS+W+R (2:2:6)	49	22	33	21 (55)

* QS: Quercus serrata sawdust, W: Wheat bran, R: Rice hull

Table7. Effect on Rice hull of *Ganoderma lucidum* cultivation a farmhouse in Kongju

Culture time Division	First	Second	Total	Average	Index (%)
	'2,000. 1~6	'2,000. 3~8			
QS + W (8:2)	22	38	60	30	100
QS + R + W (5:3:2)	28	40	68	34	113
QS + R + W (3:5:2)	30	34	64	32	107
R + W (8:2)	17	19	36	18	60
Average	24	33	-	29	-

* Conventional : Quercus serrata sawdust 80%+ Wheat bran 20%

** QS: Quercus serrata sawdust, R: Rice hull, W: Wheat bran