

Effects of Low and Alternated Temperature Treatments on Quality of Oak Mushroom in Sawdust Culture

표고 톱밥 재배에서 저온 및 변온 처리가 표고 품질에 미치는 영향

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Abstract

Recently the sawdust culture of *Lentinus edodes*(Berk.) has been gradually extended replacing the log cultivation in Korea. It is indeed able to reduce the use of log and cultivation period in controlled facilities, but is not yet able to produce the high-quality mushroom. The objectives of this study were to examine the effects of low and alternated temperature treatments during the fruiting period on the quality of oak mushroom. At low temperature treatments of 1°C and 10°C, the crack, lightness, hardness, and other characteristics for the high-quality oak mushroom were not improved. However, the crack, brightness, and hardness of cap were increased at alternated temperatures of 5-10°C than the other temperature treatments. In conclusion, the alternated temperature treatments were more effective than the low temperature treatment for improving the indices of high-quality oak mushroom such as the crack, brightness and hardness of cap.

Table and Figure

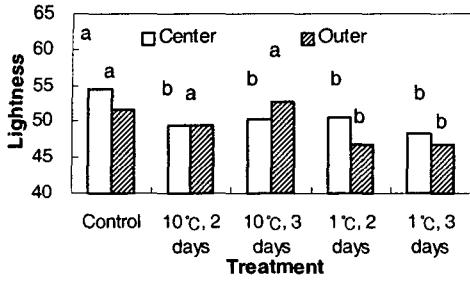


Fig. 1. Effect of low temperature treatment on lightness of center and outer of cap. Mean separation within columns by LSD test, $P=0.05$.

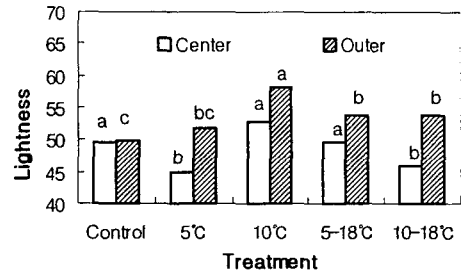


Fig. 3. Effect of low and alternated temperature treatments on lightness of center and outer of cap. Mean separation within columns by LSD test, $P=0.05$.

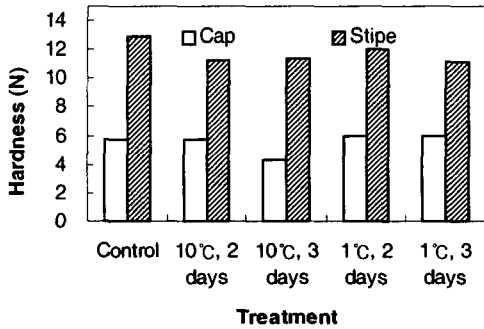


Fig. 2. Effect of low temperature treatment on hardness of cap and stipe. No significance by LSD test, $P=0.05$.

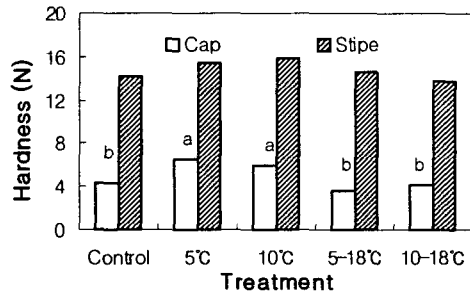


Fig. 4. Effect of low and alternated temperature treatments on hardness of cap and stipe. Mean separation within columns by LSD test, $P=0.05$.

Table 1. Effect of low temperature treatment on moisture content, dry and fresh weights of oak mushroom.

Temperature (°C)	Dry weight (g)	Fresh weight (g)	Moisture content (%)
Control	1.2	8.4	83.8
10°C, 2 days	1.7	11.0	84.1
10°C, 3 days	1.4	9.7	84.6
2°C, 2 days	1.5	10.2	85.5
2°C, 3 days	1.7	9.5	86.1

Table 2. Effect of low and alternated temperature treatments on moisture content, dry and fresh weights of oak mushroom.

Temperature (°C)	Dry weight (g)	Fresh weight (g)	Moisture content (%)
Control	1.6 ab	12.2 a	86.9 a
5°C	1.1 b	7.6 c	85.5 a
10°C	1.9 a	11.0 ab	82.7 ab
5-18°C	1.7 ab	12.2 a	86.1 a
10-18°C	1.9 a	9.1 bc	79.1 b