

环境因素对天然气调下双孢蘑菇呼吸速率影响的初步研究

Preliminary study on effects of environmental factors on respiratory rates of *Agaricus bisporus* in modified atmosphere packaging

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英文关键词: *Agaricus bisporus*; respiration rate; respiratory quotient; O_2 concentration; CO_2 concentration; treatment time; temperature; volume ratio

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中文摘要:

研究了温度、容器内顶隙气体体积与双孢蘑菇体积比、 O_2 浓度、 CO_2 浓度及处理时间 t 对双孢蘑菇呼吸速率的影响, 并采用多因素方差分析、重回归分析法, 确定了双孢蘑菇呼吸速率的显著性影响因素, 结果表明: 温度对双孢蘑菇呼吸耗氧率 R_{O_2} 、二氧化碳生成率 R_{CO_2} 、呼吸商 RQ 的影响比体积比的影响更显著; 25、18和4℃时, O_2 浓度、 CO_2 浓度及时间 t 3因素中, 时间 t 对 R_{CO_2} 的影响最大, 而12℃时, CO_2 浓度对 R_{CO_2} 的影响最大; 12℃时, 随着体积比的增大, CO_2 浓度、时间 t 的影响作用减弱, O_2 浓度作用增强。

英文摘要:

The effects of temperature, the ratio of free volume in package to the volume of *Agaricus bisporus*, O_2 , CO_2 concentration and the treatment time on the respiration rates of *Agaricus bisporus* were studied. The significant factors that affect the respiration rates of *Agaricus bisporus* were also investigated by multivariate analysis of variance and multiple regression analysis. The results demonstrate that the effects of temperature on the respiration rate R_{O_2} , R_{CO_2} and respiratory quotient of *Agaricus bisporus* are much more significant than those of volume ratio; the respiration rate R_{CO_2} of *Agaricus bisporus* is markedly affected by the treatment time among three factors of O_2 , CO_2 concentration and the treatment time at 25℃, 18℃, 4℃, but CO_2 concentration becomes the main factor that affected R_{CO_2} at 12℃. The effect of O_2 concentration on the respiration rate became greater while that of the CO_2 concentration and treatment time became less with the increase of volume ratio at 12℃.

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