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Abstract
GABA（gama-aminobutyric acid）is a major inhibitory neurotransmitter component, it can prevent insomnia, cure melancholy and stimulate the excretion of human hormone. In addition, GABA can regulate the sympathetic nervous system, and therefore, play a decisive role on the functionality of cardiovascular system. The purpose of this work is to increase the GABA content of Agaricus blazei by metabolic pathway regulation in the liquid and solid state cultivation. The result showed that, in the mycelium amount aspect, the addition of corn steep liquor in the rocker culture medium can improve the mycelium growth (26.2g/L). The result of mycelium cultivation in 5L fermenter showed that the GABA content in mycelium can be increased from 5.79g/kg to 10.17g/kg by adding 2% of glutamate in the medium, and can be further increased to 15.5g/kg if 0.2% of calcium ion were additionally added. With the addition of 2% glutamate and 0.5% germinated rice powder in the medium, the GABA content in the mycelium of Agaricus blazei can be as high as 17.75g/kg. The result of the solid state fermentation of Agaricus blazei by the use of certain natural food materials as the medium also showed an increase in their GABA content. These findings should be able to diversify the potential usage of Agaricus blazei in the healthy food market.
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