

## Relationship between Radial Extension and Specific Growth Rate of Mushroom Mycelia in Solid-state Fermentation Using Whey Permeate

Seungyong Lee, Hyokwan Bae, Seokhwan Hwang  
School of Environmental Science and Engineering, POSTECH, Pohang, 790-784  
TEL: +82-54-279-2282, FAX: +82-54-279-8299

### Abstract

Solid-state fermentation of mycelia was carried out using cheese whey permeate, which is byproduct of cheese processing. Radial extension and mass increase of five species, *Ganoderma lucidum*, *Agaricus bisporus*, *Lentinus edodes*, *Pleurotus ostreatus*, and *Phellinus linteus* were investigated. A substrate inhibition model with various concentration of whey lactose ranging from 3g/L to 90g/L were tried to predict the radial- and specific-growth rate, and to determine optimal concentrations of substrates.

The optimal concentration of whey permeate for maximum rate of radial growth and mass increase was very similar to each strain of fungi. The maximal concentration of lactose where the highest radial growth rates of *G. lucidum*, *A. bisporus*, *L. edodes*, *P. ostreatus*, and *P. linteus* occurred were  $36 \pm 2$ ,  $69.0 \pm 17$ ,  $50.6 \pm 2$ ,  $50.2 \pm 2$ , and  $55.0 \pm 2$  g/l, respectively. This relationship is important because the optimal concentration of maximum specific growth rate can be anticipated by just measuring the radial growth rate.

### Reference

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