Study on Inhibitory Effect of Resveratrol on Growth of Pseudomonas aeruginosa

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ABSTRACT

The antimicrobial effect of commercial 50% and 98% purity resveratrol (3,4,5’-trihydroxystilbene) in 10% ethanol solution with different concentration (0.1~3.2%) DMSO (Dimethyl sulfoxide) on the growth of Pseudomonas aeruginosa was investigated in this study. The antimicrobial activities of both 50% and 98% purity resveratrol against P. aeruginosa were similar. In general, the antimicrobial activity of 98% purity resveratrol was better than that of 50% purity one, but there was no significant difference between 50% and 98% purity ones. The optimal antimicrobial activity of resveratrol against the growth of P. aeruginosa was at the 4th hr of cultivation at 35oC and 150 rpm, while the inhibition of P. aeruginosa growth seemed not clearly vary with according to the addition concentration and purity of resveratrol. After 4 hr cultivation, the antimicrobial activity of resveratrol decreased as increasing the culture time and then became much low during 8~12 hr cultivation. After that, the activity gradually increased with culture time and then became unchangeable. In addition, the antimicrobial activity of resveratrol increased as increasing the addition concentration of DMSO when its concentration was less than 0.8%, while the activity less decreased when DMSO concentration was higher than 0.8%. For the best antimicrobial activity of resveratrol against the growth of P. aeruginosa, its optimal addition concentration may be 1.0 mg/ml in 10% ethanol solution with 0.8% DMSO in this study.

Keywords : resveratrol, Pseudomonas aeruginosa, antimicrobial activity, concentration

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