



Quorum sensing impression of *Rhodococcus erythropolis* on Enhancement of (IPS) production from *Ganoderma lucidum*

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Statement of Problem: Coculture is an effective culture-based strategy for discovering novel bioactive secondary metabolites from bacteria and fungi by mimicking the environmental habitat where microorganisms continuously interact with nearby residents. Co-cultivation of microorganisms has been introduced as a promising strategy for inducing gene activation that produces much more diverse chemical and biological compounds than previously known. So far, many VOCs have been characterized in bacterial and fungal species. Researchers have reported that these compounds act as Quorum-sensing molecules (QSMs).

Research Purpose: This study -for the first time- attempts to investigate the effect of co-culture Medicinal mushroom *Ganoderma lucidum* with bacteria as a Model for Evaluating Quorum-Sensing quenching Interactions in the enhancement of intracellular polysaccharide (IPS). This study performed with the aim to produce function foods, novel (IPS) -producing, in order to ameliorate an individual's immune system response toward pathogens.

Research Method: A novel submerged volatile co-culture system was constructed to study the effect of VOCs of 6 bacteria strains on IPS production in *Ganoderma lucidum*.

Results and Conclusion: The most increase in the intracellular polysaccharide (IPS) of *Ganoderma lucidum* fungus was under the influence of *Rhodococcus erythropolis* VOCs. The results demonstrated at least a 40% increase in intracellular polysaccharide.



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