



## Lipase Production From Solid State Fermentation Of Onion Skin Waste Associated Fungus *Aspergillus Niger*: A Factorial Design Study

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**Abstract:** Onions are well-known vegetables that always being used in cooking as the condiment of food. Thus, it will produce the waste which contained its skin waste. Generally, most biomass are lignocellulosic in nature, in which containing hemicellulose, cellulose, lignin as nutrients and carbohydrates as a main fraction of its content and is known to be a good carbon source for bioconversion such as microbial enzyme production. Utilizing biomass such as onion skin as a substrate for fermentative process in solid state fermentation (SSF) will lead to the degradation by microorganism that catalyse reactions to produce extracellular enzyme known as lipase. Lipase has significant biotechnology applications and commonly focused on biopolymers, biodiesel and wastewater treatment system. Many researchers focused on the types of biomass and microorganisms to yield selected enzyme but less reported on the optimization study on factors operating parameters of SSF utilizing onion skin waste as substrate to yield lipase enzyme. Utilizing *Aspergillus niger* as a common and easily available fungi used in SSF studies, the aim of this research is to optimize lipase production from SSF of onion skin waste based on selected operating parameters such as temperature, moisture content and inoculum size. To achieve this, the investigation of the SSF optimization study was conducted using full factorial design to maximized lipase yield. Lipase was characterized and the efficiency of enzymatic pretreatment on food processing wastewater to remove fat, oil and grease was tested.

**Biography:** Nazaitulshila Rasit has completed her PhD at the age of 34 years from Universiti Putra Malaysia. She is the senior lecturer of Faculty of Ocean Engineering Technology & Informatics, Universiti Malaysia Terengganu, Malaysia. She is a Ph.D holder in environmental engineering with research interest on sustainable engineering as to improve waste management system with emphasize on waste recovery process in producing renewable energy. She has published 14 scientific journals as main author including in Q1 indexed publications,



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