

**LEAVE THIS LINE BLANK**

## **Solid State Fermentation of Shrimp Shell Waste by Actinomycetes to Producing Glucosamine**

**Widyastuti, Ni Luh Gede Ratna Juliasih, John Hendri, and Andi Setiawan\***

Department of Chemistry, Faculty of Matematic and Natural Science, Lampung University,  
Jl. Prof. Soemantri Brodjonegoro No. 1, Bandar Lampung 35145, Indonesia

\*Corresponding author: [andi.setiawan@fmipa.unila.ac.id](mailto:andi.setiawan@fmipa.unila.ac.id)

### **Abstract**

Shrimp shell is one of the potential sources for the production of chitin which can be converted into its derivative products, namely glucosamine and oligosaccharides. This study aims to study the degradation of shrimp shells by actinomycetes into chitin derivative products. Actinomycetes 19C38A1 were obtained from the UPT LTSIT deposit. Furthermore, actinomycetes were cultured using a solid state fermentation method using shrimp shell media. The fermentation process on the surface of the shrimp shells was observed using the Scanning Electron Microscopy (SEM) technique. The fermentation results were analyzed using High Performance Liquid Chromatography (HPLC). The results of the observation of the surface morphology of the shrimp shells showed that there was degradation of the shrimp shells. The interpretation of the analysis data of fermented products showed the formation of glucosamine of 29 mg. Further analysis on days 6 and 8 showed a decrease in glucosamine levels by 20 mg and 15 mg, respectively. Based on the results obtained, it can be concluded that 19C38A1 isolate was able to convert shrimp shells into derivative products of glucosamine and chitin through solid fermentation using shrimp shells. This basic information is very important for further studies related to the development of fermentation methods.

**Keywords:** actinomycetes, glucosamine, solid-state fermentation, Shrimp Shell Waste,



**Figure 1. Solid State Fermentation**

### **References/Background Review Article**

Mervat F. El-Sherif, Amany S. Youssef, Maha A. Hassan, Hanim M.G. Hassan, Samy A. El-Aassar, 2013. Immobilization and Solid-State Fermentation Methods for Chitinase Production from *Bacillus licheniformis*. Life Science Journal, 10 (4).

### **Presenting author details**

Full name and title: **Widyastuti, M.Si.**

Contact number and/or Whatsapp number: 085268250114



The 2<sup>nd</sup> International Conference on Chemistry, Pharmacy, and Medical Sciences  
(ICCPM 2021)  
Bengkulu, November 24-25, 2021

September 1, 2021

**The Announcement of Abstract Acceptance**

File No: 10/iccpm2021/AI/KIM-UNIB/2021

**Dear Ms/Mrs. Widyastuti**  
**ID Registration No. 39**  
**Universitas Lampung**

We are pleased to inform you that your abstract entitled "**Solid State Fermentation of Shrimp Shell Waste by Actinomycetes to Producing Glucosamine**" has been accepted for **ORAL presentation** by the scientific committee of **the 2nd International Conference on Chemistry, Pharmacy, and Medical Sciences (ICCPM 2021)**. Please note that the conference web site is: <http://iccpm.fmipa.unib.ac.id/2nd> which is being updated regularly and provides information on the program and schedules. The detailed program for the conference will be posted on the website around mid-November 2021.

We also would like to inform you that ICCPM 2021 is collaborating with **Indonesian Journal of Chemistry (Scopus Q3), Science and Technology Indonesia (Scopus), Jurnal Kimia Sains dan Aplikasi (Sinta 2), Bencoolen Journal of Pharmacy, and Rafflesia Journal of Natural and Applied Sciences** for an opportunity to publish the selected papers. We request the additional fee for the selected papers according to the publication fee of each journal (adjust to journal publication fees).

You are kindly requested to make payment amount **IDR 100.000 for presenter non proceeding** and **IDR 350.000 for presenter with proceeding** no later than November 1<sup>st</sup>, 2021. The payment should be transferred to Bank : **MANDIRI**; Account Name : **Ria Nurwidiyani**; Account Number : **179-00-0240884-2**; Branch : **Bengkulu**; Swift Code : **BMRIIDJA107**.

Please follow this link to join our WhatsApp group: <https://chat.whatsapp.com/GbTjHdgPCZC8QTxLGO5VqE>. If you have any questions feel free to contact the conference secretariat at [iccpm2021@unib.ac.id](mailto:iccpm2021@unib.ac.id). We look forward to seeing you virtually in Bengkulu.

Yours sincerely,

**Dr. Charles Banon, M.Si.**  
Conference General Chair