



Contribution ID: 340

Type: **Poster presentation**

Novel Production Methods of Kojic Acid from a Novel, Non-Toxicogenic strain of Timorese Strain *Aspergillus Flavus*

Tuesday, October 14, 2025 5:16 PM (1 minute)

Prolonged exposure to sunlight can harm human skin, causing issues like sunburn, skin cancer, and oxidative stress. To counteract these effects, kojic acid is used in cosmetics like creams and lotions because it can inhibit hyperpigmentation. Kojic acid is also used in the food industry to prevent browning. Due to its wide range of uses in cosmetics, food, and pharmaceuticals, among other fields, there is a high demand for kojic acid. Kojic acid is typically produced by certain fungi, specifically *Aspergillus flavus* and *Aspergillus oryzae*. A major concern is that these fungi can also produce other toxic compounds, such as aflatoxins and cyclopiazonic acid, alongside kojic acid. Research has shown that various *Aspergillus* species produce a mixture of these compounds. For example, strains of *A. flavus* from Argentinean peanuts were found to produce kojic acid, aspergillic acid, cyclopiazonic acid, and aflatoxins. Similarly, other *Aspergillus* species have been shown to produce both kojic acid and aflatoxins. In this study we report the production of kojic acid from non-toxicogenic strain of Timorese Strain *Aspergillus Flavus* which produce only kojic acid without the co-production of harmful aflatoxins and cyclopiazonic acid. Solid state fermentation using rice and traditionally ground corn combined with the application of small quantity of suitable solvents leading to production high purity of kojic acid crystals. The high purity of kojic acid crystals has been known to play significant role in the stability of cosmetics products and other products. Solid state fermentation using rice/corn media combined with the suitable (cheaper) solvent for extraction and crystallization revealed the most efficient and cheapest production of kojic acid compared to the more labor work and cost using submerged fermentation.

Keywords

Kojic acid, non toxicogenic, Timorese strain, *Aspergillus*

Registration ID

229

Professional Status of the Speaker

Professor

Junior Scientist Status

No, I am not a Junior Scientist.

Authors: OLA, Antonius R. B. (Department of Chemistry, Faculty of Science and Engineering, Nusa Cendana University, Jl. Adisucipto Penfui, 85001 Kupang, Indonesia; Integrated Research Center (Bioscience) Laboratory, Nusa Cendana University, Jalan Adisucipto Penfui, 85001 Kupang, Indonesia); AUSSIOLA, Maria Grace Michelle (Giovani Catholic Senior High School, Jalan Ahmad Yani No 48 Kupang, Indonesia); SANAM, Maxs U. E. (Department

of Veterinary Science, Nusa Cendana University, Jalan Adisucipto Penfui, 85001 Kupang, Indonesia); KADANG, Luther (Department of Chemistry, Faculty of Science and Engineering, Nusa Cendana University, Jl. Adisucipto Penfui, 85001 Kupang, Indonesia); SUWARI, A. T. (Department of Chemistry, Faculty of Science and Engineering, Nusa Cendana University, Jl. Adisucipto Penfui, 85001 Kupang, Indonesia); KUSUMAI, Dodi Darma (Department of Chemistry, Faculty of Science and Engineering, Nusa Cendana University, Jl. Adisucipto Penfui, 85001 Kupang, Indonesia)

Presenter: OLA, Antonius R. B. (Department of Chemistry, Faculty of Science and Engineering, Nusa Cendana University, Jl. Adisucipto Penfui, 85001 Kupang, Indonesia; Integrated Research Center (Bioscience) Laboratory, Nusa Cendana University, Jalan Adisucipto Penfui, 85001 Kupang, Indonesia)

Session Classification: Coffee & Poster Viewing II

Track Classification: Novel Methods