



**The Chinese University of Hong Kong
Non-confidential Abstract of Technology Disclosure**

Title:

A Submerged Fermentation Protocol for production of citrinin-free red *Monascus* biomass as a Mineral-rich and Proteinaceous but low fat Functional Food

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Inventor(s):

Professor Siu Wai CHIU, Department of Biology, CUHK

Patent Status:

US Patent Pending

Non-confidential abstract:

Monascus-fermented rice is sold worldwide as a functional food or dietary supplement for its cholesterol-lowering metabolite lovastatin, GABA (a hypotensive agent). Commercial sale for Monascus-fermented rice is limited or banned by the frequent detection of citrinin, another Monascus metabolite which is a nephrotoxin and a hepatotoxin. This study reports a novel submerged fermentation system developed to produce pure Monascus biomass which was citrinin-free and contained a rich source of amino acids, fatty acids, minerals and terpenes. The production time was significantly shortened to be less than one week. Besides the desirable bioactive compounds, the produced Monascus biomass was attractively red. Acute and subchronic toxicity assays using ICR mouse model verified that Monascus biomass was safe for consumption as a health food. Also this is the first report that Monascus biomass showed anti-proliferative effect on liver cancer cells via induction of apoptosis (programmed cell death) as revealed by reverse transcriptase – polymerase chain reaction. This Monascus product has improved anti-oxidation property, nutrient rich but low in fat and devoid of citrinin. Also, the possession of lovastatin and GABA make Monascus a natural functional food.

For further queries, please contact:

Mr Billy Lam
Technology Licensing Coordinator
Tel: (852) 2609 8882
Fax: (852) 2603 5451
Email: billylam@cuhk.edu.hk

Address:
Technology Licensing Office
The Chinese University of Hong Kong
Room 226, Pi Ch'iu Bldg, Shatin, New Territories
Hong Kong SAR