

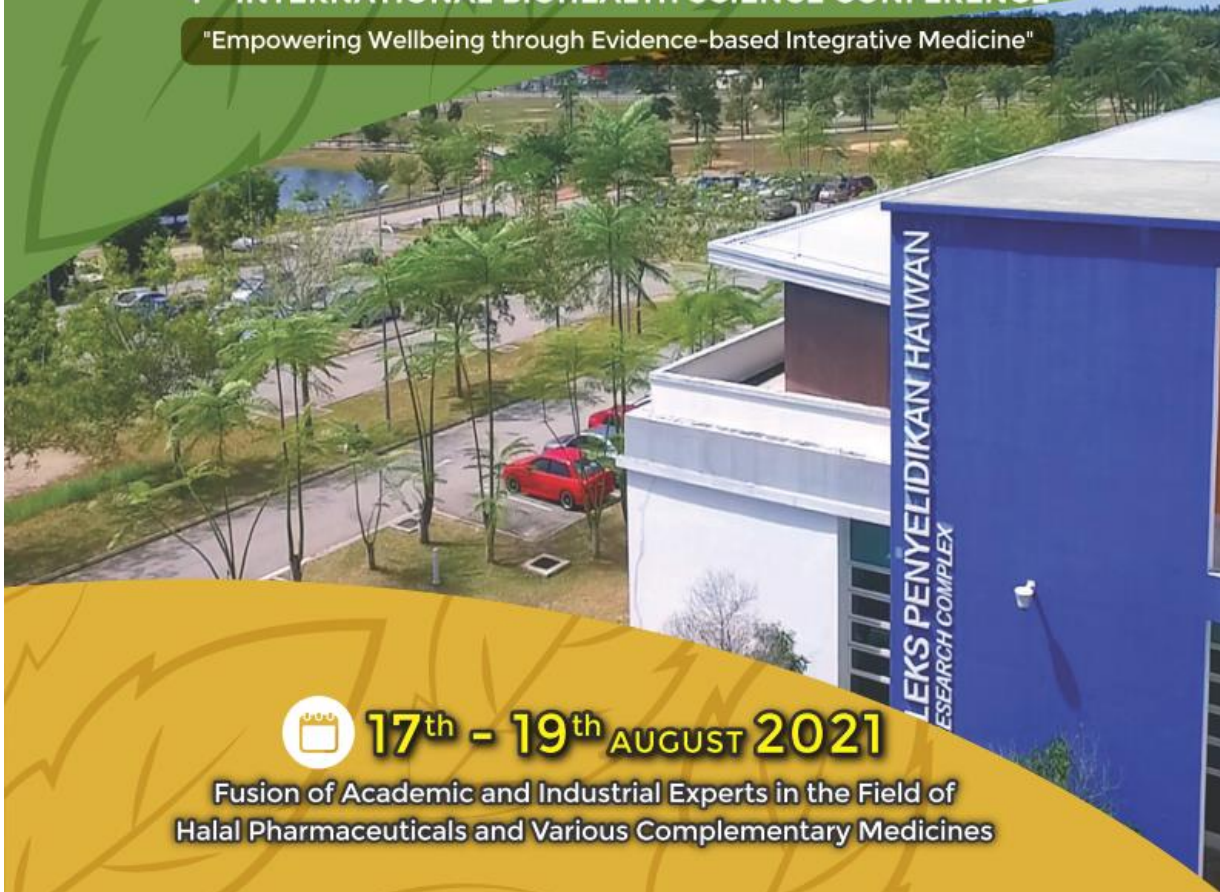
e-Conference



# INTERNATIONAL VIRTUAL CONFERENCE ON **INTEGRATIVE MEDICINE**

In conjunction with the  
**4<sup>TH</sup> INTERNATIONAL BIOHEALTH SCIENCE CONFERENCE**

"Empowering Wellbeing through Evidence-based Integrative Medicine"



 **17<sup>th</sup> - 19<sup>th</sup> AUGUST 2021**

Fusion of Academic and Industrial Experts in the Field of  
Halal Pharmaceuticals and Various Complementary Medicines

Sponsored By



**A8**

Virtual Room A

Wednesday, 18 August 2021, 3.45 - 4.00 pm

***In vitro*  $\alpha$ -glucosidase inhibitory activity of Mahkota dewa fruit flesh using different extraction methods**

Abdur Rashid<sup>1</sup>, Zaidul Islam Sarker<sup>1</sup>, Qamar Uddin Ahmed<sup>1</sup>, Abul Bashar Mohammed Helaluddin<sup>1</sup>, Sahena Ferdosh<sup>2</sup>

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**Purpose:** Before using any plant for medicinal purposes, the proper extraction method must be considered for the bioactive compounds, which can be either polar or non-polar or both, and its advantages and disadvantages, depending on the selection process. The aim of this research was to compare the  $\alpha$ -glucosidase inhibitory activity of Mahkota dewa fruit flesh using conventional and non-conventional extraction techniques.

**Method:** The extraction was performed by heat reflex (HR), supercritical fluid extraction (SFE), and subcritical carbon dioxide (Sub-CO<sub>2</sub>) extraction using different temperatures, pressure, solvent ratio, flow rate. The optimized extracts were analyzed for  $\alpha$ -glucosidase inhibitory activity with *Saccharomyces cerevisiae* enzyme.

**Result:** The yields and  $\alpha$ -glucosidase inhibitory activity of the Mahkota dewa extracts were analyzed. The yield was obtained in the order of HR>SubCO<sub>2</sub>>SFE on the other hand the IC<sub>50</sub> value of  $\alpha$ -glucosidase inhibitory activity was estimated in the order of SubCO<sub>2</sub>> HR >SFE due to its mild operating temperature and relatively low-pressure condition. Because carbon dioxide is a non-polar solvent that prefers mostly non-polar compounds, adding a co-solvent increases its polarity and improves the ability to extract more polar compounds. Furthermore, after depressurization, carbon dioxide can be easily separated from the end product. As a result, SubCO<sub>2</sub> is the most practical extraction method for achieving higher quality of extract.

**Conclusion:** The composition and bioactivities of extracts of natural products were typically influenced by the extracting method, solvent, and temperature.

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**Keywords:** Mahkota dewa, Extraction techniques,  $\alpha$ -glucosidase inhibitory

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activity of Mahkota dewa fruit flesh  
using different extraction methods**

**Presented  
By  
Md. Abdur Rashid Mia**

## Background

- *Phaleria macrocarpa*
- Family “*Thymelaceae*”
- Common name “Mahkota dewa”
- “Pau” & “Gods crown” because
- Is used traditionally for many diseases
- Especially for diabetes mellitus in many South Asian countries
- Most in Malaysia and Indonesia

## Purpose of this study

- Appropriate selection of the extraction method can give the exact constituents of interest. Various solvent extraction systems are available for the extraction of phytoconstituents from natural products. The appropriate extraction methods must be considered for the desired components.

### Objectives of the study

- The aim of this research was to compare the  $\alpha$ -glucosidase inhibitory activity of Mahkota dewa fruit flesh using conventional and non-conventional extraction techniques.

## Heat Under Reflex Extraction

25g of sample was dissolved in 95% ethanol

Heated at 95°C for 2 hours

Filtered with Whatman filter paper

This process was done until the color changed and finally evaporated by Rota vapor.



## Conclusions

- The composition and bioactivities of extracts of natural products were typically influenced by the extracting method, solvent, and temperature.
- Subcritical carbon dioxide extracts exhibited a higher inhibition activity than Supercritical and HR extract