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REVIEW ON EXTRACTION OF ANTIOXIDANT FROM *HIBISCUS ROSA SINENSIS* USING NATURAL DEEP EUTECTIC SOLVENT

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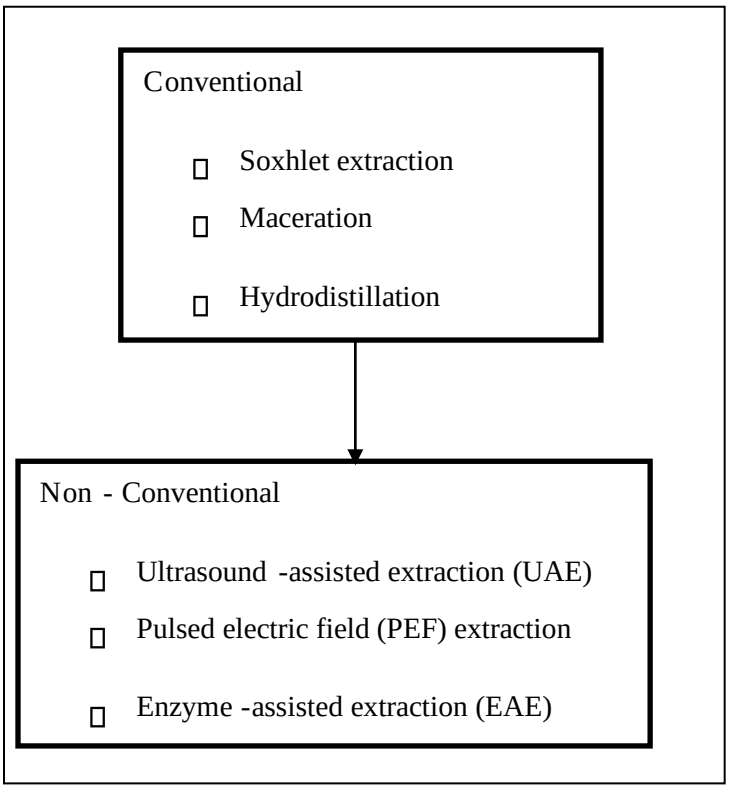
Abstract: In this Final Year Project (FYP) entittled A Revıew on Extraction of Antioxidant *From Hibiscus Rosa Sinensi*s by Using Natural Deep Eutectic Solvent is focusing on the review from the previous articles regarding to the topic. The objective of this project is to compare the extraction method on antioxidant from the plants to be applied to *Hibiscus Rosa Sinensis* species from the various previous articles available. Besides, it is also to suggest the best method on extraction of antioxidant component for *Hibiscus Rosa Sinensis* plant. There are various types of antioxidants extraction techniques from plants that are used in many studies. In the study by Selvamuthukumaran and Shi in 2017, they divide the extraction method into conventional and non-conventional extraction. In conventional extraction, there three process approach which are soxhlet extraction, maceration, hydrodistillation. In non-conventional method, it can be divided into Ultrasound-assisted extraction (UAE), Pulsed electric field (PEF) extraction and Enzymeassisted extraction. All of the methods have its own effectiveness based on different properties to be compared. It cannot be compared into a specific range based on the specific properties. However, it is found that there is widely usage of conventional solvent in the industry. With continues consumption and large amounts of these volatile and hazardous organic solvents may yet effecting the pollution to the environment and unacceptable residues in extracts. So, by using Deep Eutectic Solvent (DES) which a non-conventional solvent is the most recommended due to the green technology and sustainability. It also green, eco-friendly, sustainable and low cost solvents that can be used as the new alternative in extraction technology the many fields.

***Keywords*:** Antioxidant Extraction, *Hibiscus Rosa Sinensis*, Deep Eutectic Solvent

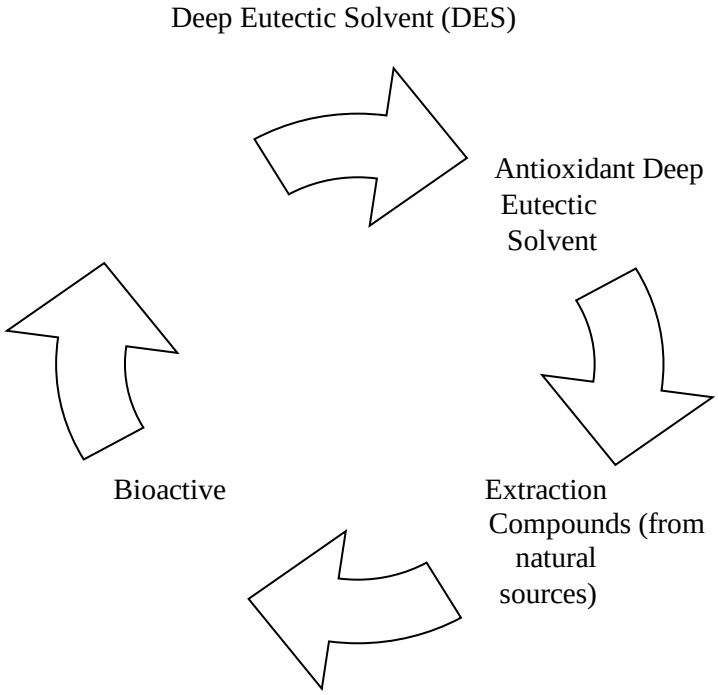
Objectives:

- To review and compare the extraction method of antioxidant from the *Hibiscus Rosa Sinensis* plant from the previous articles.
- To evaluate the extraction method for *Hibiscus Rosa Sinensis* plant from the previous articles.

Methodology:



Proposed Methodology:



Results:

DES	HBA	HBD	Ratio	Extraction Yield (mg/g)
DES 1	ChCl	Citric Acid	1:2	11
DES 2	ChCl	Citric Acid	2:1	9.8
DES 3	ChCl	Malic Acid	1:2	9.8

Conclusion:

Recently, there are many studies that focusing on the extraction method of antioxidant by from different types of sources. For example by microwave assisted extraction and ultrasound assisted extraction. They can be divided into conventional and non-conventional method. However, the conventional method used can contribute to negative effect to the human an environment. This is because of continues practice with large amounts of these volatile and hazardous organic solvents can cause the pollution to the environment and unacceptable residues in extracts eventually. So, the best and safe method that can be used for the antioxidant extraction is by using DES solvent. From the previous papers, it has provided the effectiveness of this method. Besides, the combination to produce the most efficient DES solvent and optimum condition has been investigated. It is necessary to use DES solvent techniques due to the sustainability factor, eco-friendly and low cost.