# Article information:

Physicochemical properties and digestion of the lotus seed starch-green tea polyphenol complex under ultrasound-microwave synergistic interaction - ScienceDirect  
<https://www.sciencedirect.com/science/article/pii/S1350417718311131>

# Article summary:

1. Ultrasound-microwave (UM) treatment was used to modify lotus seed starch (LS) suspensions with added green tea polyphenols (GTPs).

2. The effects of UM treatment on the physicochemical properties of the LS-GTP system were investigated and exceeded that of microwave or ultrasound alone.

3. The digestion of LS-GTP complex was investigated by a dynamic in vitro rat stomach-duodenum (DIVRSD) model, resulting in lower digestion efficiency of LS and gradual improvement in residues morphology.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article “Physicochemical Properties and Digestion of the Lotus Seed Starch-Green Tea Polyphenol Complex under Ultrasound-Microwave Synergistic Interaction” is an informative piece that provides insight into the potential benefits of using ultrasound-microwave (UM) treatment to modify lotus seed starch (LS) suspensions with added green tea polyphenols (GTPs). The article is well written and provides detailed information on the effects of UM treatment on the physicochemical properties of the LS-GTP system, as well as its digestion by a dynamic in vitro rat stomach-duodenum (DIVRSD) model.

The article is reliable and trustworthy, as it provides evidence for its claims through experiments conducted using scanning electron microscopy and confocal laser scanning microscopy. Furthermore, it presents both sides equally by providing information on both non-inclusive complex formation and V-type inclusion complex formation, as well as their respective morphologies and distributions. Additionally, possible risks are noted throughout the article, such as those associated with ultrasonic power levels.

However, there are some points that could be further explored in order to make this article more comprehensive. For example, while the article does provide information on how GTPs affect various properties depending on ultrasonic power levels, it does not provide any insight into why this occurs or what other factors may influence these effects. Additionally, while the article does mention that thermomechanical methods have been used for preparing amylose-polyphenol complexes, it does not provide any detail about these methods or how they compare to UM treatment in terms of effectiveness or cost efficiency. Finally, while the article does mention that microwave has heating effect on polar molecules which can lead to hydrogen bond breakage, it does not provide any detail about how this occurs or what other factors may influence this process.

In conclusion, this article is reliable and trustworthy overall but could benefit from further exploration into certain topics in order to make it more comprehensive.

# Topics for further research:

* Thermomechanical methods for amylose-polyphenol complex formation
* Hydrogen bond breakage due to microwave heating
* Factors influencing physicochemical properties of LS-GTP system
* Factors influencing digestion of LS-GTP system
* Comparison of thermomechanical methods and UM treatment
* Effects of ultrasonic power levels on GTPs

# Report location:

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