**Optimizing Encapsulation of avocado peel Extract Using Complex Coacervation Technique: Maximizing the Bioaccessibility and Release Kinetics in Yoghurt**

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This study employed response surface methodology (RSM) to optimize the encapsulation of avocado peel extract (APE) using the complex coacervates technique. In particular, the objective of the study was to investigate the effects of different coating material formulations, core-to-coating material ratio, and pH on the encapsulation efficiency (EE), antioxidant activity and total phenolic compounds. Four different whey protein concentrate/Arabic gum ratios (1:1, 2:1, 3:1, and 4:1), different core-to-coating material ratios (1:1, 1:2, 1:3, and 1:4) and pH (3, 4, 5) were used. Furthermore, the study examined the effect of yoghurt on the in vitro release kinetics of spray-dried APE loaded complex coacervated powder (APE-CCp). The APE-CCp was added to yoghurt (1, 2 and 3% w/v) to study the effect of protein and carbohydrate richness, as well as temperature on the stability of the capsules.

The proposed topic focuses on optimizing the encapsulation of avocado peel extract using the complex coacervation technique. This research aims to address several key tasks and objectives:

Optimization of Encapsulation: The primary task is to optimize the encapsulation process to effectively encapsulate the avocado peel extract. This involves determining the ideal conditions, such as pH, temperature, and polymer concentrations, to achieve maximum encapsulation efficiency [1].

Enhancing Bioaccessibility: Another task is to maximize the bioaccessibility of the encapsulated avocado peel extract. Bioaccessibility refers to the proportion of a compound that is released from the encapsulate and becomes available for absorption by the body [2]. This research seeks to improve the bioaccessibility of bioactive compounds present in avocado peel extract.

Release Kinetics in Yoghurt: The release kinetics of the encapsulated avocado peel extract in yoghurt will be studied. This involves understanding how the encapsulated bioactive compounds are released over time when incorporated into a dairy product [3]. The goal is to ensure a controlled and sustained release of these compounds.

**Reference**

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