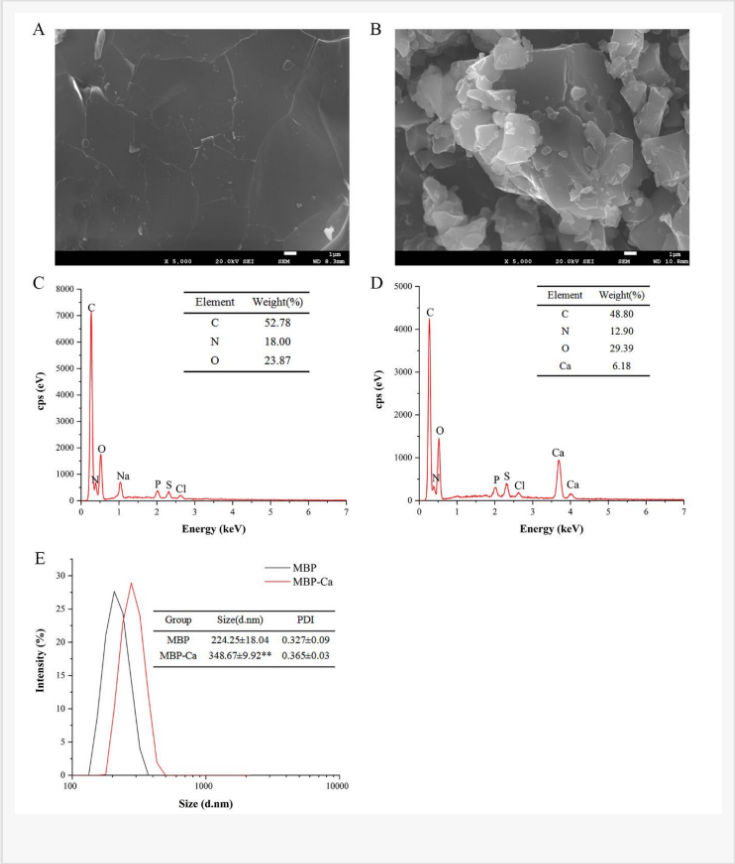
Efficient Mung Bean Peptides-Calcium Chelate: A Promising Alternative to Traditional Calcium Supplements

CHINA, October 18, 2023 /EINPresswire.com/ -- Huge quantities of mung bean starch production result in ecological pollution and protein resource wastage. In response, scientists have devised a solution: MBP-Ca, an efficient calcium supplement derived from mung beans. This innovative compound has the potential to address ecological concerns related to mung bean starch production while providing a valuable dietary supplement with enhanced calcium absorption.
The compound's efficient calcium chelation and enhanced release rate underscore its potential as a valuable dietary nutrient for improving calcium bioavailability



In a promising breakthrough for dietary supplements, Published on March 2, 2023, titled "Process Optimization, Structural Characterization, and Calcium Release Rate Evaluation of Mung Bean Peptides-Calcium Chelate" in Foods, researchers led by Associate Prof. Dong Lin at Guiyang University, China, have successfully synthesized Mung Bean Peptides-Calcium Chelate (MBP-Ca), offering an eco-friendly and efficient source of calcium and highlighted the compound's unique properties.

Under optimal conditions, MBP-Ca achieved an impressive calcium chelating rate of 86.26%. Unlike its precursor, MBP-Ca is rich in glutamic acid (32.74%) and aspartic acid (15.10%), signifying its distinct composition.

The study elucidates the mechanism behind calcium binding to MBP, involving carboxyl oxygen, carbonyl oxygen, and amino nitrogen atoms. This interaction leads to intra- and intermolecular interactions, resulting in the folding and aggregation of MBP. Consequently, the secondary structure of MBP-Ca exhibits a 1.90% increase in β-sheet content, a 124.42 nm size expansion,

and a transformation from a dense and smooth surface structure to fragmented and coarse blocks.

In comparison to conventional calcium supplements like CaCl2, MBP-Ca demonstrates superior calcium release rates under diverse conditions, including varying temperatures, pH levels, and simulated gastrointestinal digestion. This enhanced release rate is pivotal for calcium transport and absorption, making MBP-Ca a promising dietary calcium supplement with improved bioavailability.
Highlight: A novel calcium supplement with high bioavailability was prepared from protein from mung bean processing wastewater

This groundbreaking research leverages mung bean-derived MBP-Ca to address environmental concerns while providing a practical dietary solution. Further investigations into MBP-Ca's absorption efficiency and specific mechanisms hold the promise of advancing dietary calcium supplementation and enhancing overall human health.

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Lucy Wang
BioDesign Research
email us here