**New-Age Tofu – Understanding the Influence of Different Structures on Plant Protein Gels**

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This study investigates the hierarchical structures of plant protein gels and their impact on textural and sensory properties. At the microscopic level, techniques such as confocal laser scanning microscopy (CLSM) and scanning electron microscopy (SEM) provide insights into the organization of protein networks and particle interactions, which are key to important properties such as gel elasticity, syneresis1. Using dynamic light scattering (DLS), mesoscopic analyses focus on the uniformity and interaction of protein aggregates, revealing how variations in gelation methods shape intermediate structures and overall consistency2. Macroscopic properties, such as hardness or springiness3, are quantified through rheological and texture analyses, connecting structural differences to sensory experiences established through sensory studies.

By examining these scales, the research demonstrates how microstructural features govern network strength and stability, mesostructures influence energy dissipation and gel uniformity, and macroscopic characteristics determine consumer-relevant textures. Overall, these aggregated findings offer a framework for designing plant protein gels with specific functional and sensory attributes, contributing to advancements in plant-based food innovation.

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