National Institute of Technology Rourkela

Progress Seminar

Seminar Title	: Isolation, Modification, and Characterization of Guar Seed Germ Proteins for Emulsion-based Applications
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Venue	: CH 113 Department of Food Process Engineering
Date and Time	: 03 May 2024 (4:30 PM)
Abstract	: Currently, feeding the ever-increasing global population (~1.07 % per year) with nutrient-rich foods is the primary concern. With an ever-increasing demand for plant proteins, exploring novel protein sources is important. Moreover, sustainable plant protein sources must be identified to reduce the commercial burden on major soy and pea proteins, and reduce the dependency on animal protein. Guar seeds (*Cyamopsis tetragonoloba* L.) belong to the leguminous family and are majorly cultivated in the east and southern parts of Asia and the U.S.A. It is a drought-resistant underutilized and sustainable crop with regard to protein (~ 27 to 32%). Therefore, alkaline extraction was selected to isolate high-quality guar seed germ proteins (GSGP). Isolated GSGP at pH 9 had higher nutritional values and superior digestibility but poor functional properties. To overcome this problem, isolated GSGP samples were treated with cold plasma. The cold plasma treated GSGP samples showed noticeable changes in amino acids, digestibility, and techno-functional properties. Unfortunately, overoxidation of GSGP samples at higher applied voltages negatively impacted nutritional properties. Due to that, superheated steam treatment will be applied to GSGP samples to prevent overoxidation and investigate the nutritional and techno-functional properties. Therefore, the isolated and modified guar seed germ proteins will be utilized in emulsion-based applications.