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Departmental Seminar

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Seminar Title	: Return Seminar-Multifunctional Gelatin/chitosan-lactate/Curcumin food packaging films for enhanced shelf-life of chicken meat: a comprehensive characterization and application study
Speaker	: Rahul Thakur (521fp6007)
Supervisor	: Dr. Dibyakanta Seth (Intercom-2910)
Venue	: CH 306
Date and Time	: 25 Sep 2024 (17.00)
Abstract	: Background Conventional food packaging materials pose a major concern due to their adverse environmental impacts and limitations in food quality preservation. The biopolymer-based films derived from animal byproducts can be a sustainable solution. This work focuses on the development of food packaging film from gelatin, chitosan-lactate, and curcuma ethanolic extract and its applications on the preservation of chicken. Methods The films were prepared using solution casting method with varying concentrations of gelatin, chitosan-lactate, and curcuma ethanolic extract. The comprehensive characterization of films was done using various analytical techniques such as rheological, barrier, mechanical, morphological, microstructural, physical, antioxidant, and antimicrobial assays. The wrapping applications of developed films was also studied on chicken meat at 4°C for 10 days. Results The rheological properties were improved on the incorporation of chitosan-lactate and curcuma ethanolic extract in gelatin-based film. Chitosan-lactate significantly improved the elasticity of the films whereas, curcuma ethanolic extract improved the tensile strength. Gelatin film showed smooth morphology whereas, the addition of chitosan-lactate showed phase separation and rough surface. The optical and water vapor barrier properties of the films improved with the addition of curcuma ethanolic extract. Gelatin/chitosan-lactate demonstrated lower crystallinity as compare to gelatin film. The films with curcuma ethanolic extract showed antioxidant and antimicrobial activity. The wrapping application of films demonstrated significant improvement on the quality parameters of chicken meat. Conclusion The developed gelatin/chitosan-lactate/curcuma ethanolic extract films exhibit promising properties, offering sustainable solution to replace conventional packaging and for improving the shelf-life of chicken meat. The comprehensive study of characterization of film highlights its potential as innovative packaging material. Keywords: Active Packaging, Biopolymer, Shelf-life Study