



**The College of Graduate Studies and the College of Food and Agriculture
Cordially Invite You to a**

PhD Dissertation Defense

*ENHANCING THE BIOACTIVITY AND FUNCTIONALITY OF CAMEL WHEY BY ENZYMATIC
HYDROLYSIS AND CONJUGATION WITH QUERCETIN*

by

Waqas Nabi Baba

Faculty Advisor

Prof. Sajid Maqsood, Food Science Department

College of Agriculture and Veterinary Medicine

Date & Venue

8:00 am (UAE time)

Thursday, 15 June 2023

E1-1021

Access Link:

[Join Teams link](#)

Abstract

The dissertation aims to enhance the bioactivity and emulsifying properties of camel whey through peptic hydrolysis and conjugation with quercetin. Peptic hydrolysis using pepsin was conducted to study the effects of temperature, time, and enzyme concentrations on antihypertensive and antilipidemic properties. The resulting hydrolysates exhibited increased inhibition of pancreatic lipase, cholesterol esterase, and angiotensin-converting enzyme. By employing ultrasonication and a redox pair-generated free radical method, covalent conjugation of camel whey protein with quercetin was achieved. The conjugates displayed improved techno-functional and bioactive properties, including enhanced solubility, emulsifying, foaming, and antioxidant activities. Different conjugation methods were explored, with whey-quercetin conjugates generated via the free radical method demonstrating superior functional properties. These conjugates were utilized to produce and stabilize micro and nano-emulsions with smaller particle size, higher stability, and improved thermal, pH, and oxidative stabilities. The addition of starch further enhanced stability while negatively affecting oxidative stability. The modified camel whey proteins hold promising applications for producing bioactive peptide-enriched hydrolysates and functional emulsion-based foods. This research contributes to the industrial utilization of camel whey proteins, offering potential benefits in various sectors.