

# ***PhD Thesis Defenses***

On **Friday April 19<sup>th</sup> 2024 at 3.00 pm** at the classroom **G**, Via Santa Sofia 100

International  
Doctor  
Candidate

**Shaukat Muhammad Nouman** (XXXVI cycle)

Will discuss his PhD theses titled

***COMPARATIVE EVALUATION, PRACTICAL FOOD APPLICATION AND STABILITY  
IMPROVEMENT THROUGH MICROENCAPSULATION OF GINGER***

***BIOACTIVES***

***Thesis Abstract***

Globally, numerous plant-derived food ingredients have gained considerable importance and research focus due to their biological activities and advantageous characteristics. Ginger (*Zingiber officinale* Roscoe), traditionally been used as an herb and spice in ancient medicine and cuisine has also been emerged as an excellent source of functional and bioactive substances with phenomenal nutraceutical and health promoting properties. In line with other bioactive substances, the functional and phenolic compounds present in ginger are also subjected to deterioration and transformation during different handling, processing and storage conditions.

Hence, within the framework and structure of the current thesis, the multidisciplinary research activities were concentrated on: (i) the review of the currently available knowledge and literature regarding bioactive compounds in ginger, their beneficial aspects and potential food applications; (ii) the drying kinetics of ginger slices dried at different air-drying temperature and impact of drying on quality characteristics and bioactive value of the dried product; (iii) efficient extraction of bioactive compounds from ginger at the optimized extraction conditions; (iv) exploration of green extraction technique using glycerol and its consequent formulation into edible coating for the prevention of spoilage and fungal decay in stored walnuts; (v) the preparation of pea protein and starch complexes to stabilize the double emulsion system incorporated with ginger extract for its stability improvement and furnish further intuition for practical food application; (vi) microencapsulation of ginger extract employing different blends of potential biopolymers to enhance its shelf life and controlled release considering its potential for the development of functional food products.

Conclusively, the results derived from all these research activities cater father precision and new insights regarding the processing, retrieval of bioactives, their stability improvement, and subsequent employment in functional food development.

Advisor:

Prof. Biagio Fallico

Co-advisor:

Prof. Rosa Palmeri