NewTrition

Dr. C. Anandharamakrishnan (PI)   *GAP-029*

Project Objectives

• Valorization of waste streams from food processing industries.
• Development of nutritional food products using these waste materials to combat malnutrition.

Description

The NewTrition project aims on the valorisation of food industry waste by utilising them in product development. Different industrial waste streams like black gram milled fraction, potato fines, grape pomace and pomegranate seeds were collected from industries and their proximate composition was determined. Black gram fraction and potato fines were found to be rich in starch, similarly black gram fraction and pomegranate seeds were found to be rich in protein with 27.8% and 28% respectively on dry weight basis (dWB). Grape pomace was rich in fiber (17.6% - dWB). These four samples were also found to be rich in bioactive compounds, with grape pomace having the highest concentration of polyphenols at around 6227.78 (mg GAE/100g) and flavanoids 5817.70 (mg QE/100g), followed by pomegranate seeds with polyphenols approximately 4217.65 (mg GAE/100g) and flavanoids 1235.36 (mg GAE/100g).

A fortified snack, especially rich in protein and fiber can be prepared using these functional ingredients, by the formulation of a blend consisting of all four ingredients, in appropriate proportion. To evaluate their suitability in product development and the maximum limit of their incorporation, cookies were prepared by the incorporation of these functional ingredients in different concentrations ranging from 10 - 50%, replacing refined wheat flour, and the evaluation was done based on sensory parameters.

From the acceptability range of functional ingredients to be added in the food system, design for composite flour was developed using D-Optimal Mixture Design. Different formulations containing all four ingredients and refined wheat flour, were prepared and the functional properties such as Water absorption capacity, Oil absorption capacity, swelling capacity, Emulsion Activity, Emulsion Stability, Foam capacity, Foam stability, Least gelation concentration and Bulk density were determined, to study their nature and efficiency for use in product development.