
Departmental Seminar

Seminar Title	: Return Seminar-Assessment of Functional Characteristics in Little Millet Flour: A Comparative Analysis between Plasma-Activated Water (PAW) and Direct Cold Plasma Treatment
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Venue	: CH 306
Date and Time	: 01 Mar 2024 (16.30)
Abstract	: In current scenario, the escalating preference for minimally processed food has prompted increased interest in nonthermal technologies within the food industry. Cold plasma technology stands out as a promising non-thermal method, applicable both directly to food and indirectly through Plasma Activated Water (PAW). Numerous studies have explored the effects of both direct cold plasma application and indirect PAW application on food. This study aims to compare these two technologies, conducting identical 30-minute duration at 10 and 15 kV treatment voltage. The functional characteristics of little millet flour were assessed under both treatments. Direct cold plasma treatment notably increased water absorption capacity (WAC) (g/g), swelling capacity (SC) (g/g) and solubility index (SI) (g/g) from 1.21 to 1.28, 3.07 to 3.84 and 0.043 to 0.061, respectively. Conversely, PAW treatment led to an escalation in emulsification capacity (EC) (%) and emulsification stability (ES) (%) from 46.45 to 50.34 and 49.44 to 50.89, respectively. Infra-red spectra revealed no noticeable changes in peaks for both direct plasma and PAW treatment. The direct treatment demonstrated improved hydration properties than PAW and PAW enhanced emulsification properties than direct plasma. Both treatments were effective for enhancing functional properties of little millet flour. Hence, both treatments can be suitable for preparing new millet food products. Consequently, both approaches are deemed suitable for the development of novel millet-based food products. Keywords: Little millet; PAW; cold plasma; reactive species.