

Departmental Seminar

Seminar Title	: Return Seminar-Impact of drying methods on bioactive compounds, thermal properties and microstructure of Nagpur mandarin (<i>Citrus reticulata</i> Blanco) peel powder
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Supervisor	: 2910
Venue	: CH-306
Date and Time	: 27 Nov 2024 (17.00)
Abstract	: The processing of Nagpur mandarin (<i>Citrus reticulata</i> Blanco) fruit results in a substantial quantity of peel waste, posing an environmental challenge. However, these peels are rich in bioactive compounds, making them a valuable resource for industrial applications. In this study, Nagpur mandarin peel was subjected to four drying methods (freeze, hot air, microwave, and refracto-window drying) followed by grinding into powder form. The resulting powder was analysed for bioactive compounds (total phenol content, total flavonoid content, DPPH, FRAP, hesperidin, water activity, and vitamin C), thermal properties (thermograph), as well as microstructural properties (SEM, FTIR spectra, diffractogram). Significant variations were observed among the drying methods in terms of their effects on bioactive compounds, thermal, and microstructural properties of the mandarin peel powder. Freeze drying emerged as the most effective method, yielding the highest levels of total phenol content (163.70 mg GAE/100g), total flavonoid (184.69 mg QE/100g), DPPH (34.91%), FRAP (2.56 µg AA/ml), vitamin C (3.28 mg/100g), water activity (0.26), and hesperidin (2.82%). Refracto-window drying showed higher crystallinity (28.82%) compared to other methods. Therefore, freeze-drying emerges as the optimal method for producing high-quality Nagpur mandarin peel powder.