

INTEGRATED PROCESSING OF BEVERAGES FROM MINOR TROPICAL FRUITS: PROCESS OPTIMIZATION AND SHELF-LIFE EXTENSION

Salient features

- Optimum condition or process for juice extraction from under-explored tropical fruits (bael fruit): 0.61% pectinase enzyme concentration (EC), 41 °C temperature, and 152 min incubation time.
- The corresponding predicted responses in this condition were found to be 83.7% yield, 24.2% clarity, and 261 mg GE/g pulp reducing sugars.
- Better results compared to non-enzyme treated control sample

Advantages

- ✓ Unlocking the potential and health benefits of products from under-explored tropical fruits
- ✓ Revealing the advantages of novel non-thermal and advanced thermal processing technologies over existing thermal techniques
- ✓ Easy scale-up and better food processing technique

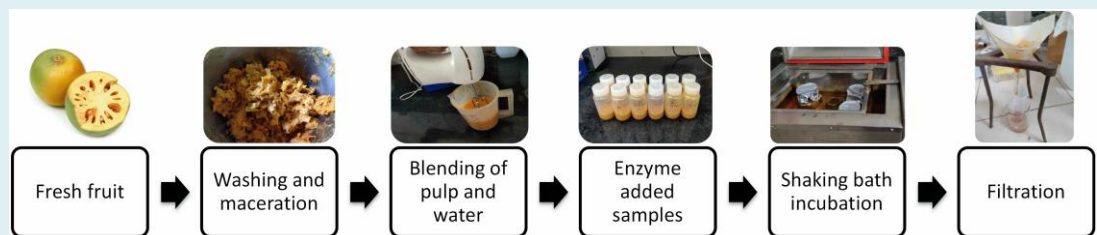


Figure 1: Process of enzyme assisted juice/beverage extraction



Figure 2: Pulsed light processing



Figure 3: Customized &continuous microwave processing

**Process
Technology
developed by**

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**More
information**

Publications

- 1) Bhatkar, N. S., Dhar, R., &Chakraborty, S. (2021). Multi-objective optimization of enzyme-assisted juice extraction from custard apple: An integrated approach using RSM and ANN coupled with sensory acceptance. *Journal of Food Processing and Preservation*, 45(3), e15256. <https://doi.org/10.1111/jfpp.15256>
- 2) Dhar, R., &Chakraborty, S. (2022). Enzyme hydrolyzed bael fruit liquefaction and its kinetic study. *Food Bioscience*, 47, 101779. <https://doi.org/10.1016/j.fbio.2022.101779>
- 3) Dhar, R., &Chakraborty, S. (2023). Pasteurization of bael fruit (*Aeglemarmelos*) juice using high-intensity pulsed light treatment. *Food Control*, 152, 109826. <https://doi.org/10.1016/j.foodcont.2023.109826>
- 4) Chakraborty, S., Mahale, S., &Dhar, R. (2023). Response surface optimization of the enzymatic clarification process for apple ber juice and pasteurization by thermal and pulsed light treatments. *Journal of Food Measurement and Characterization*, 1-11. <https://doi.org/10.1007/s11694-023-01976-8>
- 5) Patel, A. M., Dhar, R., &Chakraborty, S. (2023). Pulsed light, microwave, and infrared treatments of jaggery: Comparing the microbial decontamination and other quality attributes. *Food Control*, 149, 109695. <https://doi.org/10.1016/j.foodcont.2023.109695>