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Innovative Technology for Shelf Life Prediction of Food and Beverages

A rapid benchtop instrument and software accurately predicts food and beverage shelf life in days, aiding in more precise expiration dates and reducing waste.

Researchers at Purdue University have developed a benchtop instrument and software that can rapidly and accurately predict the shelf life of food and beverage. This instrument can provide predictions of vitamin degradation, changes in color and viscosity, and overall food quality. Unlike alternate solutions that can take weeks to months to make predictions, Purdue's technology can produce shelf-life estimates in days. This technology can be used by companies in the food and nutrition industries to create more accurate expiration dates and reduce the prevalence of retail and consumer food waste.

Advantages

- Rapid shelf-life prediction (in days, rather than weeks)

- Predictions about nutrient degradation and overall quality

- Can help reduce retail and consumer food waste

Applications

- Food and beverage industries

- Shelf-life studies

- Nutritional content research

Technology Validation:

This technology was validated via a comparison of the change in nutrients in samples exposed to conventional accelerated food degradation methods and samples exposed to Purdue's method.

TRL: 2

Technology ID
2019-MISH-68346

Category
Agriculture, Nutrition, & AgTech/Food Safety & Traceability
GreenTech/Circular Economy & Waste Reduction

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View online

Intellectual Property:

Provisional-Patent, 2023-01-16, United States | PCT-Patent, 2024-01-16, WO | NATL-Patent, 2025-07-16, United States

Keywords: shelf life prediction, food quality assessment, nutritional content, vitamin degradation, food waste reduction, expiration date accuracy, benchtop instrument, food industry technology, rapid shelf life, beverage industry, Food and Nutrition, Food Industry, Food Quality, Food Safety, Food Spoilage, food technology, food waste, shelf-life