Contribution ID: **30** Type: **Poster**

Fluorescence spectra of Ukrainian beers: machine learning exploratory study

Friday, November 8, 2024 5:04 PM (3 minutes)

Beer is one of the most popular drinks in the world. It is produced both at large-scale factories and in small craft breweries. Both producers and distributors of beer require cost-effective and stable ways to control and verify the authenticity of the drink. Traditional methods of evaluating beer properties are often expensive and require significant resources [1]. Recently, the industry has turned its attention to classification using machine learning, which has contributed to the development of rapid, contactless and automated approaches to assess the quality of beer based on spectral data.[2]

The paper examines the potential of a simple 3D printed spectral device in combination with machine learning to classify beers produced by Ukrainian breweries, based on their luminescence spectra. The spectra of 29 samples of Ukrainian mass and craft-produced beers were recorded. ML classification models (KNN, Decision Tree, Random Forest) were applied to classify the samples according to such properties as the scale of the production (industrial vs. craft), storage condition (can vs. bottle), and fermentation type (top vs. bottom). The results of the study indicate that machine learning techniques can be useful for classifying fermented beverages. The models demonstrate relatively high accuracy, although partially limited by the small number of tested samples.

References:

[1] Gonzaler V.C et al, Journal of the Science of Food and Agriculture , 2018, 98.2, pp. 618-627.
[2] Gao, Yi-Fang, et al. Food Chemistry, 2024, X 22, pp. 101300

Type of presence

Presence at Taras Shevchenko National University

Primary authors: YABLOCHKOVA, Kateryna (Taras Shevchenko National University of Kyiv); DANILIUK, Dmytro (Taras Shevchenko National University of Kyiv)

Presenter: DANILIUK, Dmytro (Taras Shevchenko National University of Kyiv)

Session Classification: Poster Session