

## Chemometric Regression Analysis of Radical Scavenging Ability of Kombucha Fermented Kefir-Like Products

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**Abstract :** The present study deals with chemometric regression analysis of quality parameters and the radical scavenging ability of kombucha fermented kefir-like products obtained with winter savory (WS), peppermint (P), stinging nettle (SN) and wild thyme tea (WT) kombucha inoculums. Each analyzed sample was described by milk fat content (MF, %), total unsaturated fatty acids content (TUFA, %), monounsaturated fatty acids content (MUFA, %), polyunsaturated fatty acids content (PUFA, %), the ability of free radicals scavenging (RSA  $D_{pph}$ , % and RSA<sub>oh</sub>, %) and pH values measured after each hour from the start until the end of fermentation. The aim of the conducted regression analysis was to establish chemometric models which can predict the radical scavenging ability (RSA  $D_{pph}$ , % and RSA<sub>oh</sub>, %) of the samples by correlating it with the MF, TUFA, MUFA, PUFA and the pH value at the beginning, in the middle and at the end of fermentation process which lasted between 11 and 17 hours, until pH value of 4.5 was reached. The analysis was carried out applying univariate linear (ULR) and multiple linear regression (MLR) methods on the raw data and the data standardized by the min-max normalization method. The obtained models were characterized by very limited prediction power (poor cross-validation parameters) and weak statistical characteristics. Based on the conducted analysis it can be concluded that the resulting radical scavenging ability cannot be precisely predicted only on the basis of MF, TUFA, MUFA, PUFA content, and pH values, however, other quality parameters should be considered and included in the further modeling. This study is based upon work from project: Kombucha beverages production using alternative substrates from the territory of the Autonomous Province of Vojvodina, 142-451-2400/2019-03, supported by Provincial Secretariat for Higher Education and Scientific Research of AP Vojvodina.

**Keywords :** chemometrics, regression analysis, kombucha, quality control

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