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**Voltammetric electronic tongue to identify Brett character in wines.****On-site quantification of its ethylphenol metabolites**Andreu González-Calabuig and Manel del Valle<sup>1\*</sup>

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**Abstract**

This work reports the applicability of a voltammetric sensor array able to evaluate the content of the metabolites of the Brett defect: 4-ethylphenol, 4-ethylguaiacol and 4-ethylcatechol in spiked wine samples using the electronic tongue (ET) principles. The ET used cyclic voltammetry signals, obtained from an array of six graphite epoxy modified composite electrodes; compressed using Discrete Wavelet transform with chemometric tools, among these artificial neural networks (ANNs) were employed to build the quantitative prediction model. In this manner, a set of standards based on a modified full factorial design and ranging from 0 to 25 mg·L<sup>-1</sup> on each phenol, was prepared to build the model; afterwards, the model was validated with an external test set. The model successfully predicted the concentration of the three considered phenols with a normalized root mean square error of 0.02 and 0.05 for the training and test subsets respectively and correlation coefficients better than 0.958.

**Keywords:** Electronic Tongue; artificial neural networks; phenolic defects; Brettanomyces defect; wine

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