ANOVA: A TOOL FOR BETTER EXPERIMENTAL DESIGN AND EVALUATION OF METHOD VALIDATION

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Analysis of Variance (ANOVA) is a powerful tool for the estimation and separation of the different causes of variation. In the new edition of EURACHEM Guide "The Fitness for Purpose of Analytical Methods – A Laboratory Guide to Method Validation and Related Topics", ANOVA is proposed as an alternative way for the simultaneous determination of intermediate precision and repeatability in a validation study. In literature have been also proposed nested ANOVA as another way for the estimation of trueness and uncertainty [1-3]. Moreover, through nested (hierarchical) experimental design, the source of variation (matrix, concentration or replicate) can be estimated that it helps the analyst to have a better view of methods characteristics. The aim of this work is to explore the capabilities of ANOVA in validation. Through an example of method validation for biogenic amines in food matrices, it will be described the estimation of precision, trueness and uncertainty with the same nested experimental design and it will be discussed the advantages and disadvantages for using ANOVA instead of classical approach.

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