

Confirmation of the suitability of the method of using ethanol as a reference substance for quantitative determination of volatile compounds in alcoholic beverages

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Abstract

Quality and safety control of alcohol products is an integral part of the work of laboratories for the food analysis. One of the most important safety indicators regulated worldwide is the chemical composition of an alcoholic beverages, namely the presence of characteristic and impurity volatile components. The list of controlled compounds includes acetaldehyde, methyl acetate, ethyl acetate, methyl, propyl, isopropyl, butyl, isobutyl and isoamyl alcohols, etc. Analysis of alcoholic beverages is a conservative field, since its results are closely associated with economic risks for the manufacturer, and also directly with the health of the population consuming this product. For this reason, the method, used for the analysis of alcoholic beverages, should be accurate, reproducible and simple for use. The authors have developed and described a method that satisfies the above requirements, based on the use of ethanol containing in alcoholic beverages as a reference substance for gas chromatographic analysis. Confirmation of the suitability of the proposed method for the analysis of a wide range of alcoholic beverages: whiskey, brandy, grappa, vodka, scotch tape, bourbon, brandy, calvados, sake, alcohol, rum, gin and tequila, is presented. The results, obtained by the proposed method are compared with the results obtained by the generally accepted traditional method of the internal standard using 2-pentanol. The repeatability and trueness of the both methods are evaluated. The relative difference between the results, obtained by the internal standard method, and the developed method did not exceed 2%.

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