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Evaluation of the phenolic and fusel alcoholic indicators for the authenticity of whiskies and brandies

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The analysis of a variety of the world-wide whiskies and brandies were performed to verify the characteristic indicator components of them for the investigation of their brands (and ripening periods). We directly analyzed the sample of 7 kinds of phenolic compounds (e.g. furfral, syringaldehyde, vanillin, syringic acid, vanillic acid, etc.) by UPLC/UV without preprocessing. For analyzing 8 types of fusel alcohols (e.g. 2-methyl butanol, 3-methyl butanol, etc.), for the purpose of optimal separation of components, column and optimized equipment conditions were optimally selected and analysis with GC/FID was done. We calculated the values of indicator component of 82 kinds of genuine products by analyzing fusel alcohols and phenolic compounds, and checked whether they are distinguishable or not, from the forged alcoholic beverages in market. In terms of measuring the alcohol contents of products, the alcohol contents of authentic products were precisely 40%, while which of forged products were less than 40%. In terms of fusel alcohol, it was possible to distinguish between authentic products and forged products by n-propanol, iso-butanol, 2-methyl butanol, 3-methyl butanol, etc.; and phenolic compounds by vanillin, syringaldehyde, vanillic acid, syringaldehyde, total phenolic compounds, etc. The results of measuring a difference between authentic products and forged products indicate that it is difficult to discern whether it is authentic or not, using one kind of phenolic compound indicator. However, by complexly comparing the authentic products and forged products, it is possible to confirm the authenticity by more than one kind of distinguishable indicators of alcoholic beverages. Generally, the results by phenolic compounds have superior ability of distinction as compared with the results by fusel alcohols.

Biography

She is working as a researcher at the Lotte R&D Center, South Korea. Her experience includes various programs, contributions and participation in different countries for diverse fields of study. Her research interests reflect in her wide range of publications in various national and international journals.

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