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Beer taste and quality evaluation using e-tongue

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Abstract:

In this study, the body and "richness" taste of beer was studied by using a taste sensing system, i.e. e-tongue. In our previous report to the ASBC in 1999, we reported bitterness evaluation of beers using our newly developed bitterness sensor on the basis of bitter aftertaste derived from iso-alpha acids found in beer, corresponding to human sensory quality. The purpose of this study is to evaluate, qualitatively, the body and richness taste of beer using our TS-5000Z taste sensing system. Effective R&D and strict quality control of a broad range of food and beverage products requires objective taste evaluation. The taste sensing system using artificial lipid/polymer membranes has been developed based on concepts of global selectivity and high correlation with human sensory score. These sensors respond to similar basic tastes in a similar manner to human taste reception with high correlations to sensory scores. Using these unique properties, these sensors can quantify the basic tastes of saltiness, sourness, bitterness, umami, astringency and richness without multivariate analysis or artificial neural networks. In the present experiment, a large variety of beers were measured using the taste sensor. The results suggested that savory aftertaste would be possible to assess through the body and richness taste of the beers. As reported at the ASBC in 1999, bitter aftertaste and how quickly it diminishes were significantly useful information in order to characterize beer taste quality. From results in both the studies, the taste sensing system would provide an effective method to optimize production methods, ensure quality control and assess shelf life in the beer industry.

Poster Author Biography:

Masaaki Habara received his B.E. and M.E. degrees, both in electrical engineering, from Kanazawa Institute of Technology in 1995 and 1998 respectively and a Dr. Eng. degree from Kyushu University in 2002. He worked as a visiting associate professor of Graduate School of Kyushu University until 2011. He joined Intelligent Sensor Technology, Inc. as a Research & Development Engineer in 2011.

