INTRODUCTION

The sensory industry is in need of a rapid and standardized preparation method to evaluate the extraneous flavors that are present in malt. Maltsters, researchers, and select brewers have historically evaluated malt flavor by tasting Congress Wort prepared from the Congress Mash (1,2). The process to make up the brewing industry, specifically the region-grown and region-brewed segments have created demand for a fast and affordable malt sensory method that is both sensitive and repeatable. Such a method is needed to serve as a baseline for evaluating malt flavor in a field testing setting and for research purposes to potentially unique or desirable flavors in barley varieties.

The Hot Steep method

The Hot Steep method offers the following advantages over the traditionally used Congress Mash: the wort can be prepared in a shorter period of time, with wort being produced in approximately 1.5 hours compared to approximately 5 hours. The method can be performed using significantly less expensive supplies, most of which can be purchased from a general retailer. Lastly, the Hot Steep method is optimized for flavor whereas the Congress Mash is optimized for extract. By reducing the conversion time and temperature, malt flavor compounds may be significantly less expensive supplies, most of which can be purchased from a general retailer. Lastly, the Hot Steep method is optimized for flavor whereas the Congress Mash is optimized for extract. By reducing the conversion time and temperature, malt flavor compounds may be significantly

EXPERIMENTAL

Samples

The malt samples used in this study were provided by Briess Malt & Ingredients Co., Malting & Brewing Science (M&B) division. M&B Malting & Brewing Science, and other brewing materials. The samples were marketed in Minneapolis, Wisconsin, USA and imported from 2015 to 2018 as a 48 ounce sample. The malt samples were received in 2015, 2016, and 2017.

Standardized preparation method

Approximately 52 g of malt was ground in an electric grinder for 10 seconds or until a coarse flour consistency was achieved (i.e., 300-400 mesh). Malt flour was added to a TE hermetically sealed Thermos® 400 mL of 65 °C distilled water was added to the Thermos® and the cap was secured before vigorously shaking for 20 seconds to ensure the malt grist was completely wetted and mixed into solution. Let stand for 15 minutes.

The Hot Steep method

The Hot Steep method was performed as follows: the malt samples were ground in an electric grinder for 10 seconds or until a coarse flour consistency was achieved (i.e., 300-400 mesh). Malt flour was added to a TE hermetically sealed Thermos® 400 mL of 65 °C distilled water was added to the Thermos® and the cap was secured before vigorously shaking for 20 seconds to ensure the malt grist was completely wetted and mixed into solution. Let stand for 15 minutes.

Perform wort sensory evaluation within four hours of filtration. Serve at room temperature.

RESULTS AND DISCUSSION

Data

The data obtained in the collaborative study triangle test results showed (Table I) that the critical number of correct responses necessary to conclude that a significant difference in flavor amongst the samples presented in the triangle test. Interpretation of results for this study is based on a 90% confidence interval (alpha risk = 0.10). A methodology for the sensory evaluation of malt flavor was proposed and validated in this study, in which the samples were presented to participating sensory panels and evaluated by 88% of participating sensory panels. The Sensory Technical Subcommittee recommends that the Hot Steep method be published in the ASBC Methods of Analysis, where it may be utilized as a rapid and standardized sensory evaluation method for malt flavor.

CONCLUSIONS

A methodology for the sensory evaluation of malt flavor was proposed and validated in this study, in which the samples were presented to participating sensory panels and evaluated by 88% of participating sensory panels. The Sensory Technical Subcommittee recommends that the Hot Steep method be published in the ASBC Methods of Analysis, where it may be utilized as a rapid and standardized sensory evaluation method for malt flavor.

ACKNOWLEDGMENTS

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LITERATURE CITED