Quality potential of a New Canadian Hulless Malting Barley Variety CDC Clear

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Introduction

CDC Clear is a new 2-row hulless malting barley variety developed by the University of Saskatchewan. It is a good yielder and has good resistance to lodging, shattering, straw breakdown and drought, as well as good resistance to Fusarium Head Blight. The malting trials conducted at CMBTC exhibited its overall malt quality potential which is comparable to the 2-row regular malting varieties, but with exceptionally high extract yield. Despite the availability of this hulless barley variety and its exceptional malt quality potential, commercial brewers remain skeptical due to potential processing concerns with wort separation without the availability of a mash filter or other equipment. To address these concerns, we demonstrated that CDC Clear malt can be utilized in the brewing process using a regular lauter tun for wort separation. In addition, CDC Clear malting performance and beer quality were evaluated against regular commercial 2-row pale malt.

Experiment

Malting Trials:

The hulless malt was produced at CMBTC using the 100 kg pilot mashing system with a CDC Clear barley sample collected from Saskatchewan, Canada during harvest. The regular malt was a commercial pale malt (2-row) obtained from the Canada Malting Company, Calgary, Canada.

Brewing Trials:

The brewing trials were conducted at CMBTC using a 3.5hl pilot brewing system. All-malt brews were conducted in duplicate (except for 100% hulless) using 100%, 50%, 30%, and 0% of the hulless barley malt supplemented with 0%, 50%, 10%, and 0% of the regular barley malt, respectively. All brews were conducted under CMBTC’s standard conditions. The process procedures for all the brews were kept identical, except for the wort separation. The 50%, 30%, and 0% hulless barley malt utilized a lauter tun for wort separation, while the 100% hulless brew utilized a lauter tun in a pilot-scale system.

Results and discussion

Table 1. Final malt analysis.

Table 2. Table brewhouse performance.

Table 3. Final beer analysis.

Figure 1. Runoff times using CDC Clear in a lauter tun.

Figure 2. Last runnings using CDC Clear in a lauter tun.

Figure 3. Final attenuation of beers.

Figure 4. Wort sugar profiles.

Figure 5. Overnight fermentation beer sugar profiles.

Figure 6. Sensory evaluation of the final beers.

The brewing trials were carried out at CMBTC exhibiting its overall malt quality potential for regular commercial 2-row pale malt. It is observed that the final beers yielded a greater brewhouse efficiency in comparison to 0% hulless malt. No major defects were observed in the final beers.

Conclusions

CDC Clear barley can produce malt comparable to commercial 2-row varieties increased in sparge water would allow for collection of the remaining sugars in the grain bed and yield a greater brewhouse efficiency than observed in this experiment.

Overall, despite the greater beta-glucan content and higher viscosity in the CDC Clear malt, all brews utilizing the lauter tun performed similarly in the brewhouse with no problems experienced and very only slight differences observed during wort collection.

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References