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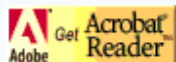
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Examination of the Relationships Between Original, Real and Apparent Extracts, and Alcohol in Pilot Plant and Commercially Produced Beers

Anthony J. Cutaia¹, Anna-Jean Reid² and R. Alex Speers^{2,3}

¹ Science Source Consulting, Ballwin, MO.

² Food Science and Technology, Dalhousie University, 1360 Barrington Street, D401, Halifax, NS B3J 2X4 Canada.

³ Corresponding author. E-mail: Alex.Speers@Dal.Ca.

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ABSTRACT

The historical development of equations used to relate alcohol and real extract to apparent extract and original gravity, as well as ratios between the corrected Real (RDF) and Apparent Degrees of Fermentation (ADF), were examined in light of modern polynomial and non-linear regression techniques. Comparisons were performed using an extensive data set of 532 brews obtained from commercial and pilot fermentations with statistical error analysis of these empirical relationships. New predictions of apparent extract were calculated as a function of alcohol and real extract analogous to the Improved Tabarie' s formula. In addition, attempts at improving Balling' s original equation model estimating original gravity from alcohol and real extract are detailed and discussed. The statistical analyses of relationships between $A_{w/w}$ (alcohol by weight) and functions of OE (Original Extract), AE (Apparent Extract) and RE (Real Extract) as well as ratios between the corrected Real and Apparent Degrees of Fermentation (RDF/ADF) are reported. It is expected that this paper will be useful for brewers to more accurately estimate $A_{w/w}$ and real extract values.

Key words:

ADF, alcohol, apparent extract, brewing calculations, original extract, RDF, real extract.

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