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ABSTRACT

Reducing sugars in six molasses samples from the USA, UK, Turkey, South Africa and Brazil were measured using copper reduction (Luff Schoorl and Lane & Eynon), chromatographic (HPLC and IC), and enzymatic ICUMSA (International Commission for Uniform Methods in Sugar Analysis) methods. The final molasses samples included two beet molasses, two sugarcane factory molasses, and two sugarcane refinery molasses. Precision and mean results were compared. The Lane & Eynon method had consistently the best precision. Precision was worst in the enzymatic and chromatography methods than both copper reduction methods and followed the order: Lane & Eynon > Luff Schoorl > HPLC = IC > Enzymatic. Lane & Eynon, and particularly Luff Schoorl, methods consistently *over-estimated* "apparent sucrose" in molasses, as compared to the more accurate chromatography results, because they measure all reducing substances present. HPLC generally gave slightly higher mean results than IC. The new ICUMSA enzymatic method (GS4-6; draft status) correlated well with both copper reduction and chromatographic methods, but tended to *under-estimate* apparent sucrose. However enzymatic results were close to IC results, which indicates that enzymatic method could be more accurate than copper reduction methods.