



Determination of Decimal Reduction Time of Peracetic Acid Used in Brewery Industry for Disinfection Purposes

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Abstract: Disinfection operation is of great importance within the beer processing industry for beer safety reasons. Microbiological risk management is essential in the production of high-quality beer since quality defects may lead to substantial economic losses. The objective of this research was to investigate the effect of commercial peracetic acid (PAA) concentration for disinfection and the resistance of microorganisms in beer based on the decimal reduction time (D-value), and reduction 6-log₁₀ of initial number of microorganisms. The efficacy of different PAA concentrations during chemical disinfection in beer industry was investigated according to MEBAK, EBC methods and European standards CEN: EN 1276, EN 1650. The Koch method was used for isolation, incubation, and counting the Colony Forming Units (CFU's) of gram-positive, gram-negative and *Saccharomyces carlsbergensis* yeast on the selective terrene. The obtained results of survived microorganisms toward disinfecting agent were calculated by one-fold linear regression method. The results showed that the time of paracetic acid action, for the determined concentrations, are lower value than the values recommended from the producer especially for *Saccharomyces carlsbergensis* yeast. The overall order of efficacy of disinfectant was: gram positive bacteria > gram negative bacteria > *Saccharomyces carlsbergensis* yeast.

Key words: *beer, peracetic acid (PAA), disinfection, decimal reduction time (D-value), microorganisms.*

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