

Sustainability and operational excellence

Prof Bettie Lodolo

Abstract

Water, the essence of life, needs preservation.

A study published nearly decade ago, by the 2030 Water Resources Group, concluded that, in 2030, competing demands for water resources would create an estimated gap of 40% between global demand and supply. Water usage optimisation projects must be embraced now more than ever. Opportunities exist for FMCG companies to optimise site water usage through practices driving prevention of waste or plants maintaining consistent, sustainable hygiene standards. A holistic site hygiene plan, including water hygiene management is required. Practical approaches to manage water hygiene are presented showing positive impact on plant hygiene and water usage when implemented.

SPEAKER/S PROFILE/S + PHOTOGRAPH

Bettie worked as a microbiologist for SAB optimising fermentations and sustainable brewery hygiene. She received the IBD award for the presentation: “Assuring Brewing Water Hygiene for the Future” based on this work. Her PhD from University of Stellenbosch resulted in the MBAA Presidential award. She was appointed as affiliated Professor at the University of Free State, serves on the editorial board of the ASBC (American Society of Brewing Chemists) and have authored/co-authored 26 papers related to yeast research and brewing science. Bettie holds a MSc in Molecular Genetics (cum laude) as well as a PhD in Microbiology. She is currently a Project Development Manager with NrG.



Contact details

Email address	#bettie.lodolo@nrgeneration.com
Website	#www.nrgeneration.com
Telephone	#011 7063333
Twitter	#@sample#

References – Previous Speaking Experiences

- ♦ 1999: Winner of the MBAA Presidential award for the outstanding refereed paper “Optimisation of wort dissolved oxygen for an industrial brewers' yeast in high gravity brewing”.

- ♦ 2007: Invited to present the plenary lecture for the session on Brewing yeasts at the 26th ISSY (International Specialized Symposium on Yeasts). This work was published as a review paper in Federation of European Microbiological Societies (FEMS) in 2008.
- ♦ 2009: Invited as SME to present an intensive course on Yeast and Fermentation (Seminario de Cerveceria) to the SABMiller breweries in Colombia.
- ♦ 2011: Presented as invited speaker to Wort Hog Brewers on the topics of “Cleaning & Sanitation” and “Yeast & Fermentation”
- ♦ 2015: Presented as invited speaker to craft brewer’s Beer Boot Camp on “Maintaining your own yeast culture at home”.
- ♦ 2015: JP Dufour award for the paper entitled “Assuring Brewing Water Hygiene for the future”.
- ♦ 2017: Presented as invited speaker to craft brewer’s PowWow on “Yeast Propagation and Harvesting”

References – Published works

- 1 Box, W., Bendiak, D., Castonguay, L., Feliciano, S., Fischborn, T., Gibson, B, Kuenker, M., Lodolo, B., Miller, M., Nicholls, S., Thiele, F., White, L. and Powell, C. (2012) Differentiation of ale and lager yeast strains by rapid X- α -Gal Analysis. *J. Am. Soc. Brew. Chem.* 70: 313-315.
- 2 Kock, J.L. F., Sebolai, O. M., Pohl, C. H., van Wyk, P. W. J. and Lodolo, E. J. (2007) Oxylin studies expose aspirin as antifungal. *FEMS Yeast Res.* 7: 1207-1217.
- 3 Lodolo, E.J., Rossouw, F.T. and Ferreira, N.P. (1990) Mitochondrial DNA analyses of the Lipomycetaceae. *Syst. Appl. Micro.* 13: 1- 7.
- 4 Lodolo, E.J., Van Zyl, W.H., and Rabie, C.J. (1992) A Rapid Molecular Technique to Distinguish Fusarium species. *Mycological Research* 97: 345-346.
- 5 Lodolo, E.J., O’Connor-Cox, E.S.C., and Axcell, B.C. (1993) The effects of impaired mitochondrial function and lipid biosynthesis on high gravity brewing. *Proc. Conv. Inst. Brew. Centr. Southern African Sect.* 4: 167-180.
- 6 Lodolo, E.J., O’Connor-Cox, E.S.C., and Axcell, B.C. (1995a) Novel application of glucagon and insulin to alter yeast glycogen concentration. *J. Am. Soc. Brew. Chem.* 53: 145-151.
- 7 Lodolo, E.J., O’Connor-Cox, E.S.C., and Axcell, B.C. (1995b) The use of glucagon and insulin as tools to study metabolic interrelationships in brewing yeasts. *J. Am. Soc. Brew. Chem.* 53: 182-190.
- 8 Lodolo, E.J., du Plessis, G.A., O’Connor-Cox, E.S.C., and Axcell, B.C. (1995) Pantothenate supplementation in brewery wort as a means of reducing SO₂ and acetaldehyde concentrations. *Proc. Conv. Inst. Brew. Centr. Southern African Sect.* 5: 134-151.
- 9 Lodolo, E.J., O’Connor-Cox, E.S.C. and Axcell, B.C. (1999) Evidence of antimycin-insensitive respiration in a commercial brewing yeast. *J. Inst. Brew.* 105: 35-43.
- 10 Lodolo, E.J., O’Connor-Cox, E.S.C. and Axcell, B.C. (1999) Optimization of the dissolved oxygen supply for high-gravity brewing. *MBAA Tech. Quart.* 36: 139-154.
- 11 Lodolo, E.J. and Cantrell, I.C. (2005) Oxygen – Friend and foe of yeast metabolism. *Proc. Inst. Brew. Dist. Africa Sect.* 10: 42 – 51.
- 12 Lodolo, E.J. and Cantrell, I.C. (2006) Yeast vitality – a holistic approach towards an integrated solution to predict yeast performance. *J. Am Soc. Brew. Chem.* 65: 202-207.
- 13 Lodolo, E. J., Kock, J. L. F., Axcell, B. C. and Brooks, M. (2008) The yeast *Saccharomyces cerevisiae* – the main character in the beer brewing process. *FEMS Yeast Res.* 8: 1018 – 1036.
- 14 O’Connor-Cox, E.S.C., Lodolo, E.J., and Axcell, B.C. (1993) Role of oxygen in high gravity fermentations in the absence of unsaturated lipid biosynthesis. *J. Am. Soc. Brew. Chem.* 51: 97-107.

- 15 O'Connor-Cox, E.S.C., Lodolo, E.J., and Axcell, B.C. (1995) The relative importance of mitochondrial protein synthesis to brewing yeast performance. *J. Am. Soc. Brew. Chem.* 53: 128-135.
- 16 O'Connor-Cox, E.S.C., Lodolo, E.J., and Axcell, B.C. (1996a) High gravity wort clarity and its effect on brewing yeast performance. *MBAA Tech. Quart.* 33: 20-29.
- 17 O'Connor-Cox, E.S.C., Lodolo, E.J., and Axcell, B.C. (1996b) Mitochondrial relevance to yeast fermentative performance: A review. *J. Inst. of Brew.* 102: 19-25.
- 18 O'Connor-Cox, E.S.C., Majara, M.M., Lodolo, E.J. Mochaba, F.M. and Axcell, B.C. (1996) The use of yeast glycogen and trehalose contents as indicators for process optimisation. *Ferment* 9: 321-328.
- 19 O'Connor-Cox, E.S.C., Mochaba, F.M., Lodolo, E.J. Majara, M.M. and Axcell, B.C. (1997) Methylene blue staining: Use at your own risk. *MBAA Tech. Quart.* 34: 306-312.
- 20 Strauss, C.J., Kock, J.L.F., Viljoen, B.C., Botes, P.J., Hulse, G., and Lodolo, E.J. (2004) Lipid turnover during inverse flocculation patterns in *Saccharomyces cerevisiae* UOFS Y-2330. *J. Inst. Brew.* 110: 207-212.
- 21 Strauss, C. J., Kock, J.L.F., van Wyk, P.W.J., Lodolo, E.J., Pohl, C.H. and Botes, P.J. (2005) Bioactive oxylipins in *Saccharomyces cerevisiae*. *J. Inst. Brew.* 111: 304 – 308.
- 22 Strauss, C.J., van Wyk, P.W.J., Lodolo, E.J., Botes, P.J., Pohl, C.H., Nigam, S. and Kock, J.L.F. (2006) Oxylipin associated co-flocculation in yeasts. *J. Inst. Brew.* 112: 66 – 71.
- 23 Strauss, C.J., van Wyk, P.W.J., Lodolo, E.J., Botes, P.J., Pohl, C.H., Nigam, S. and Kock, J.L.F. (2007) Mitochondrial associated yeast flocculation – the effect of acetylsalicylic acid. *J. Inst. Brew.* 113: 42-47.
- 24 Swart C.W., Dithebe, K., van Wyk, P.W.J., Pohl, C.H., Swart, H.C., Coetsee, E, Swarts, J.C., Lodolo., E.J. and Kock, J.L.F. (2012) Gas bubble formation in the cytoplasm of a fermenting yeast. *FEMS Yeast Res.* 12: 867–869.
- 25 Swart C.W., Dithebe, K., van Wyk, P.W.J., Pohl, C.H., Swart, H.C., Coetsee, E, Lodolo., E.J. and Kock, J.L.F. (2013) Intracellular gas bubbles deform organelles in fermenting brewing yeasts. *J. Inst. Brew.* 119: 15–16.
- 26 Van Zyl, W.H., Lodolo, E.J. and Gericke, M. (1993). Conversion of homothallic yeast to heterothallism through HO gene disruption. *Curr. Genet.* 23: 290-294.

Footnotes