Surono I S et al., Madridge J Food Technol. 2018
http://dx.doi.org/10.18689/2577-4182.a2.010

Microbiota Composition of Dadih – A Traditional Fermented Buffalo-Milk of West Sumatra

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Dadih is an Indonesian traditional spontaneous fermented buffalo-milk, produced in West-Sumatra, which is nutritious and has health-benefits. The mechanism of action behind the health-benefits is largely unknown, but several probiotic strains have been isolated from dadih, which may contribute to its health properties. To identify the composition of its microbiota, Two artisanal dadih samples (n=8) were collected from four producers. The raw buffalo-milk used for fermentation was either pasteurized (n=4) or not (n=4), and back-slopping was used as a starter-culture (n=5) or not (n=3). DNA was extracted from each sample in duplicate and the microbiota composition was determined by 16S-rRNA-gene amplicon-sequencing of the V3-V4 region. PCoA analysis showed clear separation of the samples by producer, but no separation due to pasteurization or use of back-slopping. *Lactococcus* (52%-83%) predominated in all samples, followed by *Klebsiella* (5%-26%), and Lactobacillaceae, *Bifidobacterium* (particularly high (~18%) in the non-pasteurized, back-slopped product from Palupuh), *Streptococcus* and *Leuconostoc*. Back-slopping practice correlated significantly with higher abundance of Lactobacillaceae, *Pediococcus*, species of the order Burkholderiales, and Serratia, but with lower abundance of several other Enterobacteriaceae (including *Klebsiella*), Streptococcaceae, *Staphylococcus* and *Brachybacterium*. Pasteurization was not significantly correlated with presence of certain members of the final microbiota. Taken together, fermentation results differ significantly from producer to producer and back-slopping practice would be advisable.

Keywords: Dadih, microbiota, fermentation, back-slopping, pasteurization, buffalo milk

Biography:

Ingrid S Surono, is the Head of Food Technology Department, Faculty of Engineering at BINA NUSANTARA University, Jakarta, Indonesia. She earned MSc in Food Processing from Asian Institute of Technology (AIT), Bangkok-Thailand, in 1984. PhD was obtained from The United Graduate School, Gifu University-Japan, in 1996. She dedicated herself to probiotic and prebiotic research since 1992, and her research interests are in child nutrition, functional foods and food safety. She is co-promoter of 15 PhD students from Post Graduate Programs at Faculty of Medicine Airlangga University, Faculty of Medicine University of Indonesia, Faculty of Human Ecology Bogor Agricultural University, and Faculty of Medicine Airlangga University and of Andalas University. She has published 8 books, and wrote 2 chapters in text book published by CRC and Taylor Francis, and wrote 3 chapters in Encyclopedia of Dairy Sciences. She is an author of Probiotic, Microbiome and Functional Foods, published in 2016 in Indonesian. In 2011, Science and Technology Award have been granted to her from Toray Foundation. In 2012, she was nominated as ten best researcher of RISTEK KALBE SCIENCE AWARD 2012. She is President of Indonesian Scientific Society for Probiotics and Prebiotics (ISSPP), and one of Scientific Members at Danone Institute Indonesia since 2013-2017 and appointed as Head of Food Technology Department, Faculty of Engineering, BINA NUSANTARA University, Alam Sutera Campus, Tangerang, Indonesia.