

## Prospective kinetic-measures ( $D_{(acid)}$ -, $D_{(bile)}$ -, $z_{(acid)}$ - and $z_{(bile)}$ -values) for evaluating survival of probiotics in the human gastrointestinal tract

Nditange Shigwedha<sup>1</sup>, Li Jia<sup>2</sup> and Peter George Bille<sup>1</sup>

<sup>1</sup>University of Namibia, Namibia

<sup>2</sup>Meat Corporation of Namibia, Namibia

Probiotics have been used by many people to aid in restoring and maintaining a healthy intestinal balance in favor of beneficial bacteria, which is essential in maintaining excellent health. Food industries have been able to recognize the vast market potential created by these positive health benefits of the probiotic bacteria, particularly in beverages. Probiotics can also be administered as capsules or tablets or incorporated into food as dietary adjuncts and into baby foods. However, the viability of most probiotics in the gastrointestinal (GI) tract, is a challenge because they are often sensitive to gastric acid and bile salts. Devising a method to measure objectively said viability is somewhat critical in order to provide health benefits. A new approach was designed to enable objective evaluation of the resistance of probiotics to real gastric juice of high acidity, and to various bile salt concentrations. Hence, the integration of 4 new kinetic-measurements ( $D_{(acid)}$ -,  $D_{(bile)}$ -,  $z_{(acid)}$ - and  $z_{(bile)}$ -values) for the probiotics' survival in the GI tract was, therefore, adopted as a result of observing consistent log-cell reduction (90%) when strains of *Bifidobacterium* spp. were exposed to these 2 different stressing environments. Survivals of each strain at pH values between 3.0 and 4.5 and in ox-bile concentrations between 0.15% and 0.60% for up to 41 h are pronounced. The results suggested that these 4 kinetic-measures would be quicker and more convenient than the screening and selection process in evaluating survival of probiotics, and in measuring their tolerance to gastric acidity and the associated bile salts.

### Biography

Nditange Shigwedha is currently a Lecturer within the Department of Food Science & Technology at University of Namibia, Namibia. He has completed his MSc and a PhD at the age of 30 years from Jiang Nan University in the People's Republic of China in 2003 and 2006, respectively. He is a former HOD: Food Science & Technology at the University of Namibia. He has taught various courses, authored more than 10 research articles in reputed journals, 1 book chapter, 4 conference papers and serving as an editorial board member of Namibian Developmental Journal. He is a member of IFT.

nditange@gmail.com