From Probiotic Beer to Probicient

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Self-introduction

• Associate Professor
  Food Science & Technology Programme
  National University of Singapore (NUS)

• [http://fst.nus.edu.sg/OurPeople/SQLi.html](http://fst.nus.edu.sg/OurPeople/SQLi.html)

• Teaching – Food/beverage fermentation, flavor science

• Research interests
  - Fermentation
  - Flavour science
  - Food waste biovalorisation
  - Probiotics (probiotics fermented foods/beverages)
Introduction to Probicient

• Probicient is a spin-off company from NUS to commercialise probiotic beer

• [http://probicient.com/](http://probicient.com/)

• IP licensed to Probicient

• Business models – sublicensing, joint ventures and partnerships
What’s probiotic beer?

• Beer fermented with probiotic bacteria (and yeast)

• Contains high counts of live probiotics

• Inspired by sour/craft beer
Characteristics of probiotic beer

- Contains live probiotics, *Lactobacillus* together with yeast
- Stable up to 4 months (chilled, 0 to 7.5 IBU)
- 4-5% v/v alcohol
- pH 3.5-3.9
- Unfiltered
- Unpasteurised
Current markets for probiotics

- Dairy – fermented and unfermented
- Supplements – capsules, tablets, sachets
- Non-dairy foods – white space for probiotics
- Alcoholic beverages – controversial, provocative?
Alcoholic drink and health – A paradox or oxymoron?

• Culture/society-specific or dependent

• “The French paradox – red wine and health”

• Make beer a delivery medium of probiotics

• Deliver health benefits through responsible drinking
Route to market

• Partnering with a microbrewery with chilled-chain distribution in Singapore

• Partnering with a large brewery in Singapore – ambient conditions
Unique selling points

• First probiotic beer in the world, for **booming probiotics market**

• Non-dairy **probiotics-fermented** drink

• High cell counts of **live probiotic bacteria**

• Novel craft beer for **booming craft beer market**
The rise of fermented foods (and beverages)

• Health benefits of fermented foods: microbiota and beyond
  Maria L Marco, Dustin D Heeney, +9 authors Robert W. Hutkins
  Published 2017 in Current opinion in biotechnology
  DOI: 10.1016/j.copbio.2016.11.010

• Fermented beverages with health-promoting potential: Past and future perspectives
  Alan J. Marsh\textsuperscript{abc} Colin Hill\textsuperscript{bc} R. Paul Ross\textsuperscript{ab} Paul D. Cotter\textsuperscript{ab}
  Trends in Food Science & Technology
  Volume 38, Issue 2, August 2014, Pages 113-124
The rise of fermented foods (and beverages)

• Fermented food in the context of a healthy diet: how to produce novel functional foods?
  Leroy, Frédéric; De Vuyst, Luc
  Current Opinion in Clinical Nutrition and Metabolic Care: November 2014 - Volume 17 - Issue 6 - p 574–581
doi: 10.1097/MCO.0000000000000108

• Lactic acid bacteria and bifidobacteria with potential to design natural biofunctional health-promoting dairy foods
  Daniel M. Linares,1,2 Carolina Gómez,1 Erica Renes,3 José M. Fresno,3 María E. Tornadijo,3 R. P. Ross,2 and Catherine Stanton1,2,*
The rise of fermented foods (and beverages)

• Postbiotics: An evolving term within the functional foods field
  J.E.Aguilar-Toalá\textsuperscript{a}R.Garcia-Varela\textsuperscript{b}H.S.Garcia\textsuperscript{c}V.Mata-Haro\textsuperscript{d}A.F.González-Córdova\textsuperscript{a}B.Vallejo-Cordoba\textsuperscript{a}A.Hernández-Mendoza\textsuperscript{a1}
  Trends in Food Science & Technology, Volume 75, May 2018, Pages 105-114

• Probiotics – great potential as starter cultures for bifunctional fermented foods and beverages (live and active cultures and bioactive metabolites)

• Probiotics supplements – live, not active