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Symbiotic microencapsulation to enhance *Lactobacillus acidophilus* survival

Karen Cristina Guedes Silva, Eliza Cristina Cezarino, Mariano Michelon, Ana Carla Kawazoe Sato



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1 Symbiotic microencapsulation to enhance *Lactobacillus acidophilus* survival

2 Karen Cristina Guedes Silva¹, Eliza Cristina Cezarino¹, Mariano Michelon², Ana Carla
3 Kawazoe Sato¹

4 ¹Department of Food Engineering, Faculty of Food Engineering, University of
5 Campinas, 13083-862 Campinas, SP, Brazil.

6 ²Department of Mechanical Engineering, Pontifical Catholic University of Rio de
7 Janeiro, 22451-900 Rio de Janeiro, RJ, Brazil.

8

9 Corresponding author (Ana Carla Kawazoe Sato): *E-mail:* acksato@unicamp.br; *Tel.:*
10 +55 19 35214088

11 Karen Cristina Guedes Silva: karen_cgs@hotmail.com

12 Eliza Cristina Cezarino: elizacezarino10@hotmail.com

13 Mariano Michelon: michelonmariano@gmail.com

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15 Abstract

16 *Lactobacillus acidophilus* was microencapsulated in alginate-gelatin (AG) and alginate-
17 gelatin-fructooligosaccharides (AGF) microbeads by external gelation, with the purpose
18 of increasing the viability of the probiotic culture when exposed to gastrointestinal tract
19 (GIT) and during storage when added to yogurt. The microencapsulation provided
20 greater protection of cells when exposed to simulated GIT. Moreover the addition of
21 fructooligosaccharide (FOS) to the matrix promoted the formation of a more
22 interconnected network, which contributed to better protection of cells and controlled
23 delivery. Microencapsulation process proved to not affect cell viability. Microbeads AG
24 and AGF improved probiotic survival during the storage in yogurt compared to free *L.*
25 *acidophilus* (FLA). This study showed that symbiotic microencapsulation provided
26 greater viability of *L. acidophilus* during the storage in yogurt and in GIT, as well as
27 providing functional characteristics of yogurt with added of AGF microbeads.

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