Evaluation of *Lactobacillus* Potential as Probiotics Isolated from Breast for Yoghurt Fermentation

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ABSTRACT

Three lactobacilli i.e. *Lactobacillus rhamnosus* B16, *Lactobacillus pentosus* A7, *Lactobacillus fermentum* A17f and *Pediococcus pentosaceus* A16 isolated from breast milk, have been evaluated for yoghurt fermentation, as single culture or combination with *Streptococcus salivarius* subsp *thermophilus* (S. thermophilus). Those lactic acid bacteria (LAB) isolates were able to survive at pH 2 and bile acid, hence they were potential as probiotic cultures. As a single culture, not all isolates grow well on skim milk (10%). Only *L. rhamnosus* B16 and *L. pentosus* A7 grew well on skim milk as indicated by the lowering of pH. The growth of *P. pentosaceus* A16 in milk needs supplementation with sugar, i.e. sucrose and glucose. Supplementation of sugars did not enhance the growth of *L. fermentum* A17f. Poor growth of *L. fermentum* in milk was also indicated by less massive curd formed. Prolong incubation at 30, 37 and 42°C decreasing the pH below 4 for *L. rhamnosus* B16, *L. pentosus* A7 and *P. Pentosaceus* A16, but *L. fermentum* A17f remain about 5. The pH decrease is higher at higher incubation temperature i.e. 42°C. The growth of the *L. rhamnosus* B16, *L. pentosus* A7 and *P. Pentosaceus* A16 were faster at higher temperature i.e. at 37 and 43°C as compared to 30°C. The total number of LAB of those LAB was higher than *L. fermentum* A17f. Acid production and growth of *L. rhamnosus* B16 and *L. pentosus* A7 was faster compared to the other. Curdling has started after 24 h, while the other started after 48 h. Incorporation of S. *thermophilus* at ratio of 1:1, 1:2 or 2:1 did not affect the titratable acidity and the pH of yoghurt of *L. rhamnosus* B16 and *L. pentosus* A7, but it did for *L. pentosaceus* A16. Sensory characteristic all yoghurt improved by incorporation of S. *thermophilus* as starter cultures. Mix culture of *L. pentosus* A7 and S. *thermophilus* did not affect the total LAB and lactobacilli, however the effect was shown for *P. pentosaceus* A16. In conclusion, *L. rhamnosus* B16 and *L. pentosus* A17 could be used for yoghurt fermentation but for the best sensory characteristic, incorporation of S. *thermophilus* satreter culture is necessary, meanwhile *P. pentosaceus* A16 has to be used together with S. *thermophilus* for yoghurt fermentation.

Key words: *Lactic acid bacteria*, breast milk, yoghurt, starter culture.