



The Effect of *Lactobacillus acidophilus* ATCC 4356 Probiotic *with* Modified Citrus Pectin Alginate on Faecal Lactobacilli in Balb/C Mice

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Introduction

- Probiotics have been defined as live microorganisms that, when administered in adequate amounts, confer a health benefit on the host.
- Live microbial feed and food supplement that beneficially affect the host's intestinal tract.
- Modified citrus pectin (MCP) is a natural polysaccharide used as supplements for cell proliferation.
- Intestinal bacteria utilize the constituent of ingested food for their metabolic activities making the gut microbiota a target in the modification of functional supplement foods.

Nikon AIM

- To examine the effect of microencapsulated probiotic *Lactobacillus acidophilus* ATCC 4356 with/without MCP and alginate calcium (AC) on the faecal lactobacilli microbiota population in healthy Balb/c mice.



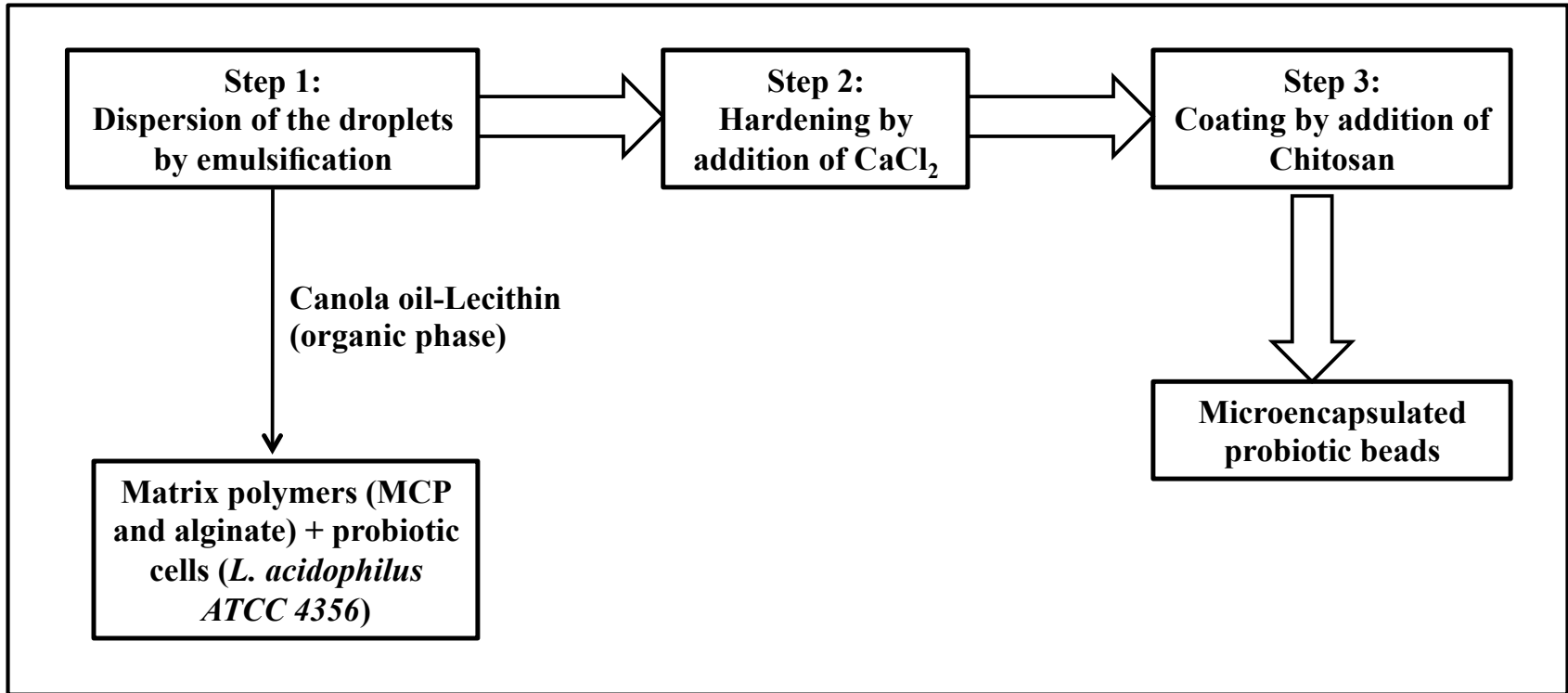


Fig 1. Schematic diagram of the emulsification polymerization procedure

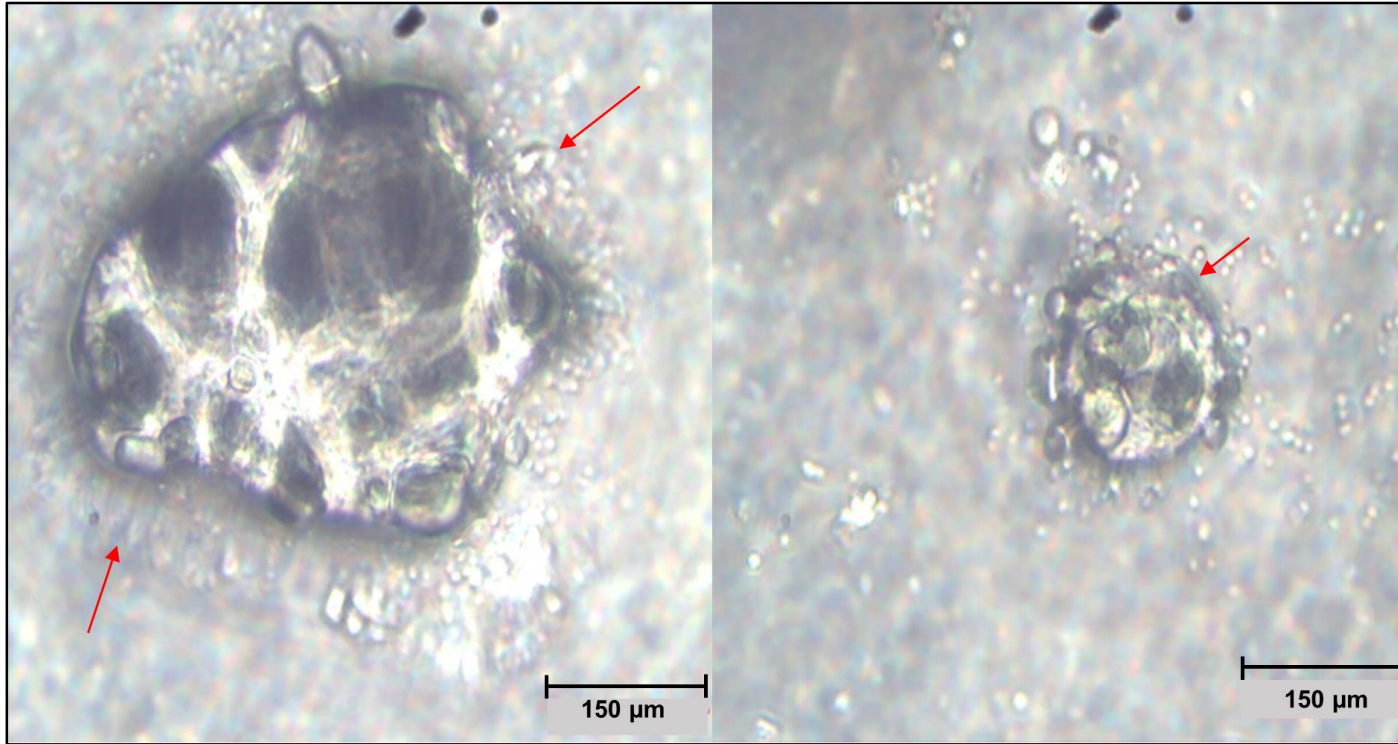


Fig 2. The morphology of (A) modified citrus pectin alginate (MCPA) and (B) alginate calcium (AC) probiotic microbead particles produced by emulsification with arrows indicating the chitosan coating.

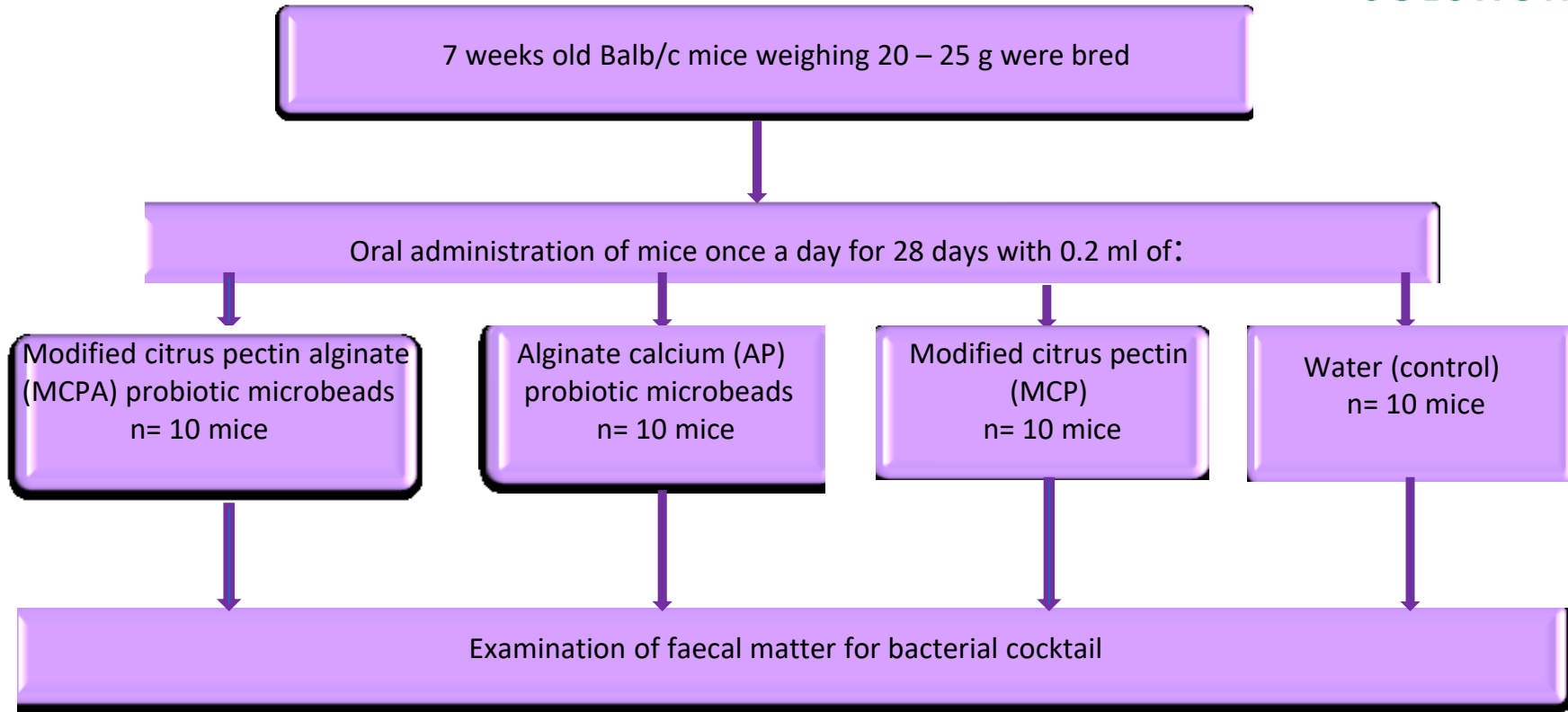


Fig 3: Schematic flow of oral administration of microencapsulated probiotic uptake in Balb/c mice model

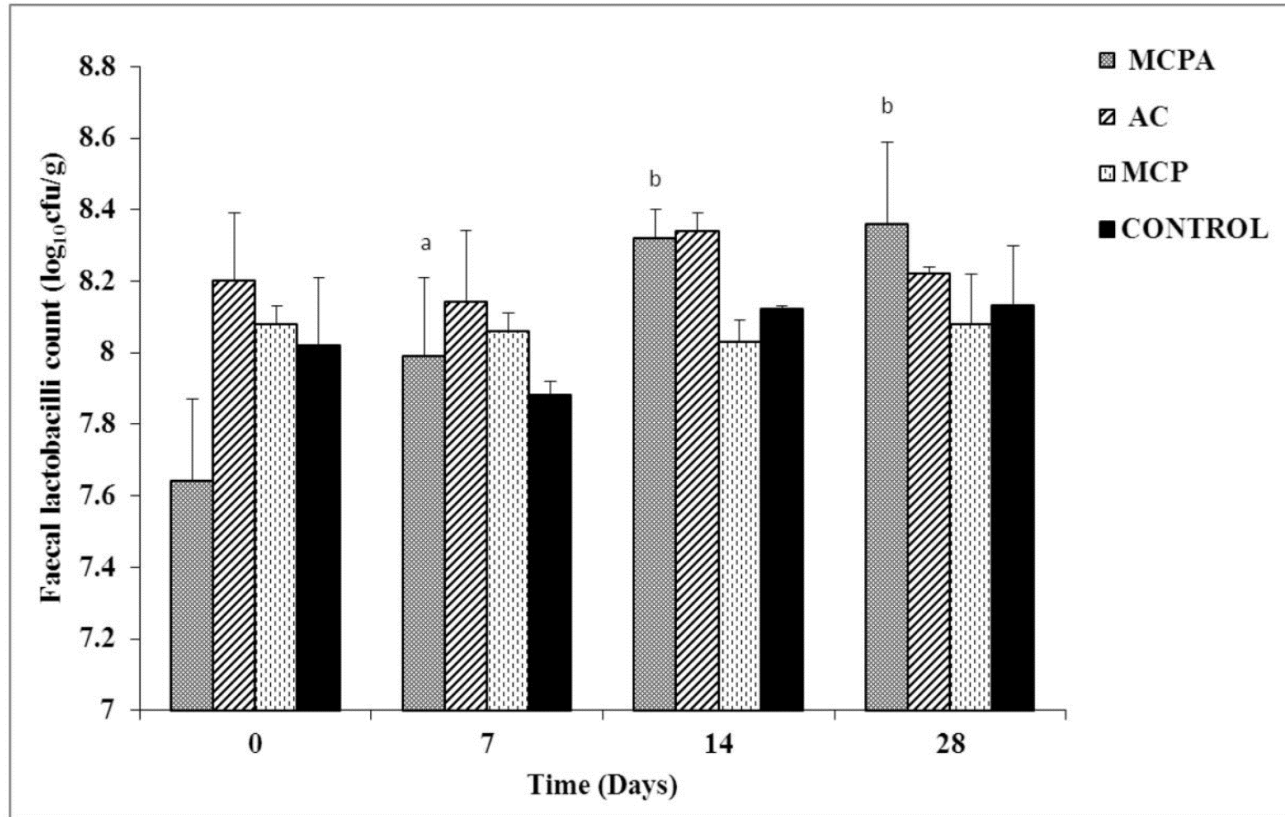


Fig 4. Average faecal lactobacilli count (log₁₀cfu/g) in mice administered with modified citrus pectin alginate (MCPA), alginate calcium (AC) probiotics, modified citrus pectin solution (MCP) and water (control) for 28 days.

 **Nikon** Limitation

- *In vivo* sampling of the colon tissue as some lactobacilli may colonized discrete areas in the mouse intestinal tract or remain adherent to the mucosal surfaces and therefore remain non-detectable from the faeces using microbiological agar.



Conclusion

- Modified citrus pectin alginate probiotic microbead presents to be a novel and effective oral delivery of bacterial cells and also an adjunct (combined with health beneficial bacteria) to supplementary dietary.
- The addition of *L. acidophilus* ATCC 4356 with MCP and alginate increases the number of faecal lactobacilli in the mice.
- Therefore, the co-administration of live probiotic, *L. acidophilus* ATCC 4356 with MCP supplement helps to maintain and/or improve the integrity and population of the intestinal microbiota.