ABSTRACT

Fermented dairy has been consumed widely and estimated to have inclining demand due to health benefits offered. Discoveries and studies on alternatives of lactic acid bacteria (LAB) starter culture in producing fermented dairy with more health benefits have been carried out to meet the demand. *Pedioccocus acidilactici,* gained popularity due to its well-known bacteriocin, Pediocin PA-1 and Pediocin AcH, also cholesterol lowering properties and good fermentation ability. In order to create a starter culture with lower contamination rate and enhanced shelf life, previous study had developed spray dried *P. acidilactici* starter culture. Nevertheless, this product has not yet been tested on optimum inoculation size to obtain fermentation efficiency and productivity.

This study aimed to assess the effect of inoculation size of spray dried *P. acidilactici* on milk fermentation. Three inoculation sizes (1%, 2%, and 4%, w/v) were incorporated into separate pasteurized milk and were incubated at 45^{o}C overnight. Milk samples with different inoculation size were investigated for their acidification properties, microbial growth, and syneresis level in 0, 8, 16, 20, and 24 hours incubation time. Milk inoculated with 4% w/v spray dried *P. acidilactici,* or SC4, presented higher microbial growth, acidification and lower syneresis in comparison to other samples. The results confirmed that increasing inoculation size affects the fermentation characteristic, where higher inoculum size develops higher final viable colony count, faster fermentation rate, titratable acidity, and reduces the pH and syneresis.

Keywords: *Pediococcus acidilactici,* starter culture, fermentation, inoculation size