



TITLE: Physico-chemical properties of pigeon pea yogurt (*Cajanus cajan* L. Millsp) as functional food

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ABSTRACT

Nowdays, research on functional food develops rapidly, thus fermented foods diversification product becomes popular due to the variety of raw materials used as fermented products. The use of legumes as a raw material for making fermented drinks has been widely researched because it is very beneficial for people with lactose intolerance. This research aims to utilize pigeon peas (*Cajanus cajan* (L.) Millsp) as a yogurt fermentation substrate, because pigeon peas have various advantages such as high protein, high carbohydrates and low fat that can be utilized by lactic acid bacteria as fermentation substrate. Pigeon peas are widely used as traditional medicine. The research used lactic acid bacteria *Lactobacillus bulgaricus* and *Streptococcus thermophilus* as commercial starters and local starter isolates from water soaked in pigeon peas *Lactiplantibacillus plantarum* subsp. *plantarum* strain G6, treated with pure pigeon pea milk and pigeon pea milk combined with skim milk. The method for making pigeon pea yogurt was soaking the beans for 12 hours, boiling at 100°C, then blending and filtering to obtain pigeon pea juice. The next stage was

pasteurization at 85°C and cooling to 41°C, added with yogurt starter, then incubated at 39°C for 17 hours. All yogurts had a distinctive sour aroma, thick texture, creamy color, and have good physico-chemical properties. Pure pigeon pea yogurt commercial isolate had a viscosity content of 233.30±0.46 cP, pH 4.5±0.12, water content 86±0.82%, acidity 0.50±0.09%, soluble protein 22± 1.14%, fat content 1.80±0.06%, Propionate 0.17±0.02, butyrate 0,17±0,03, and total lactic acid bacteria 124x10⁻⁷CFU/g. Pigeon pea yogurt, a combination of skim milk with commercial isolate and local isolate, can be used as a functional health food.

Keywords: Pigeon pea, yogurt, Physico-chemical, functional food.



BIOGRAPHY

Yuni Sine is a third year doctoral student at the biotechnology study program at Gadjah Mada University, Indonesia. 35 years old. Completed undergraduate education from Nusa Cendana University, Indonesia in 2012, Master of Science education from the Faculty of Biology, Gadjah Mada University in 2016. Has 20 articles in Indonesian national journals with the Google Scholar H-6 index, with around 129 citations. The field of research he is pursuing is microbiology, especially in the field of functional food by utilizing local regional resources. Currently conducting research on fermented functional foods that have health impacts for hyperglycemia conditions, by utilizing local resources of nuts as a substrate and lactic acid bacteria as a fermentation starter.

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