

**DEVELOPMENT OF FINGER MILLET (*Eleusine
coracana*) INCORPORATED SYNBIOTIC
DRINKING YOGHURT**

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by

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Abstract

Yoghurt is one of the nutritive, healthy and popular dairy products all around the world. At present, people are looking for health beneficial food products as most of them are suffering from non-communicable diseases. High calorie yogurt drink which contains any kind of cereal is completely a new product concept to the Sri Lankan market. Therefore this study was carried out to develop a value added finger millet incorporated synbiotic dairy beverage and to investigate the prebiotic effect of finger millet compounds on probiotic starter culture. Finger millet was incorporated as three different forms as germinated finger millet flour, roasted finger millet flour and raw finger millet slurry. In the preliminary trials the most compatible sugar percentages (out of 8% and 10%) for different incorporation levels (4%, 5%, 6%, 7% and 8% w/w) of each forms were determined and then 4%, 5%, 6%, 7% and 8% (w/w) finger millet incorporation levels of each form were evaluated by using ranking method. Out of that 5% (w/w) was selected as the best incorporation level from all three forms. Finally sensory evaluation was carried out to select the best form of incorporation and to select the most suitable stage for adding finger millet in the production of drinking yoghurt. According to the sensory evaluation results, as the best form germinated/ malted flour was selected and incorporation of finger millet before fermentation was selected as the most suitable stage to incorporate finger millet. Finally proximate analysis, physico-chemical and microbial parameters were analyzed in final synbiotic yoghurt product. Based on sensory evaluation, microbiological and physico-chemical results shelf life of the final product was around 21 days after that sensory properties had changed although no any microbial contamination occurred. Results obtained from chemical (pH and titratable acidity) and microbiological analysis (*E.coli/coliform* count) are not deviated from Sri Lanka Standards specifications for yoghurt. For the selected final product probiotic lactobacilli enumeration was carried out by pour plating on MRS media. The lactic acid bacteria count (CFU/ml) was high in finger millet incorporated yoghurt compared to control yoghurt sample, indicating that the prebiotic compounds in finger millet such as resistant starch, oligosaccharides, crude fibers enhance the growth of probiotic bacteria. Therefore finger millet which have rich nutritional profile can be used as a prebiotic source for the production of probiotics incorporated yoghurt as a value added dairy product to the Sri Lankan market which have desirable sensory properties and considerable shelf life.