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# Prebiotic Activity of Commonly Available Starches in Sri Lanka

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Starch is the most common constituent in higher plants and the major form of carbohydrate which contributes 50% to 70% of energy in human diet. Rather than its basic nutritional function, some compounds in starches are responsible for giving additional or enhanced physiological benefits. Prebiotics are one such group in starch which modulate a broad range of inflammatory diseases, such as inflammatory bowel disease, obesity and associated non-communicable diseases. The objective of this study was to compare the prebiotic activity and dietary fiber composition of fifteen different types of commonly available starch sources ( *Wheat, White raw rice, Red raw rice, Kurakkan, White Basmathi, Red Basmathi, Blackgram, Corn, Soy, Olu, Kithul, Chickpea, Oats, Atta* and *Palmyrah*) in Sri Lanka. Prebiotic effect was assessed by the proliferation of *Bifidobacterium animalis* Subsp. *lactis* (BB-12) and *Lacobacillus acidophilus* (LA-5) in the presence of each starch substrate. Dietary fiber content was investigated using enzymatic gravimetric method (AOAC (2012)-991.42). Results revealed that the total dietary fiber content (TDF) was significantly different ($P<0.05$) among flour samples and the highest TDF recorded in *Soybean* (38.65±0.31%) with 32.76±0.16% of insoluble dietary fiber (IDF) and 5.89% of soluble dietary fiber content while the lowest TDF recorded in wheat flour (2.3±0.13%). In both occasions *soybean* showed the highest total dietary fiber as well as insoluble dietary fiber content. Among the tested samples *Olu* showed a significant enhancement ($P<0.001$) of the growth with respect to *Lactobacillus* ($1.07x10^8$ CFU/ml, 9.07 times growth enhancement compared to *oats*) and *Bifidobacterium* ($7.28x10^7$ CFU/ml, 2.03 times growth enhancement compared to *oats*). There was no correlation between dietary fiber composition and prebiotic activity of studied starches. The current study revealed that *Olu*, *White Basmathi* and *Oats* have the highest prebiotic activity compared to the other starch sources used in this study.

**Keywords:** *Bifidobacterium*, Dietary fiber, *Lactobacillus*, Prebiotic

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