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## Evaluation of mucuna beans flour fermented with *Lactobacillus plantarum* as a probiotic food

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**M**ucuna beans flour fermented with *Lactobacillus plantarum* was evaluated *in vitro* and *in vivo* for probiotic activities in this investigation. *L. plantarum* used were isolated from 'ogi' made from sorghum thereafter, it was screened for growth and survival in the mucuna beans flour. At the end of 72 hour fermentation at 37°C, the *L. plantarum* showed appreciable growth ( $8.83 \times 10^6$  cfu/g). After storage for 14 days at refrigeration ( $4 \pm 20^\circ\text{C}$ ) and room temperature ( $25 \pm 20^\circ\text{C}$ ), there was a considerable increase in the *Lactobacillus* found in the products stored at room temperature ( $13.67 \times 10^6$  cfu/g) compared to the one stored at refrigeration temperature ( $8.47 \times 10^5$  cfu/g). There was a steady increase in the total titratable acidity and temperature with concomitant reduction in the pH of samples during the fermentation period. The proximate analysis showed that there was an increase in the protein and moisture contents with decrease in carbohydrates, fats, fibre and ash contents of the fermented samples compared to the unfermented sample. Under varying pH range, *L. plantarum* showed high growth and survival at pH 2 to 3. Supplementing the diet of albino rats infected with *E. coli* and *Shigella dysenteriae* with fermented products reduces significantly ( $p \leq 0.05$ ) the numbers of these pathogens and other enteric bacteria while the number of the *Lactobacilli* increased considerably. Furthermore, the body weight of the rats fed the fermented product was significantly ( $p \leq 0.05$ ) higher than the control group. Also, the haematological analysis showed that the rats infected with the pathogens and later fed with the fermented mucuna beans flour recovered fully since their values were well within the permissible limit and were not significantly ( $p \leq 0.05$ ) different from the control group. In all, the rats fed with the product fermented with *L. plantarum* showed good recovery compared to the control. Conclusively, these results suggest that mucuna beans flour fermented with *L. plantarum* could be used as an ideal probiotic food.

### Biography

A.O. Ojokoh is an Associate Professor in the department of Microbiology of the Federal University of Technology, Akure, Nigeria. His current research interests include Food Microbiology and Extrusion and Fermentation Technology. He has published several papers in learned journals and academic conferences. He has visited the Institute of Food Processing, Chinese Academy of Agricultural Sciences, Beijing, China a number of times for research. He has been involved in several important research projects. He is a Member of The Society of Industrial Microbiology (SIM), USA, Nigerian Society of Microbiology (NSM), Biotechnology Society of Nigeria (BSN) and Association of Industrial Microbiologists of Nigeria (AIMN). He has supervised several Masters and Ph.D theses in Food and Industrial Microbiology.

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