OMICS International
conferenceseries.com

J Biotechnol Biomater 2015, 5:2
http://dx.doi.org/10.4172/2155-952X.S1.035

Industrial Biotechnology Congress

August 10-11, 2015 Birmingham, UK

Percentage reduction on selected polycyclic aromatic hydrocarbons' concentration present in oil sludge during co-composting with animal manures

O Ubani, H I Atagana and M S Thantsha
University of South Africa, South Africa

Polycyclic Aromatic Hydrocarbons (PAHs) are components of oil sludge that are known to be cytotoxic, mutagenic and potentially carcinogenic. Bacteria have been reported to degrade oil sludge components to innocuous compounds such as carbon dioxide, water and salts. This study was to measure the reduction in PAHs present in oil sludge by co-composting the sludge with pig, cow, horse and poultry manures under laboratory conditions. Four kilograms of soil spiked with 800 g of oil sludge was co-composted differently with each manure in a ratio of 2:1 (w/w) spiked soil: manure and wood-chips in a ratio of 2:1 (w/v) spiked soil: wood-chips. Control was set up similar as the one above but without manure. The composites were incubated for 10 months at room temperature. Compost piles were turned weekly and moisture levels were maintained. Moisture level, pH, temperature, CO2 evolution and oxygen consumption were measured monthly and the ash content at the end of experimentation. Highest temperature reached was 27.5 ˚C in all compost heaps, pH ranged from 5.5 to 7.8 and CO2 evolution was highest in poultry manure at 18.78 µg/dwt/day. Microbial growth and activities were enhanced. Bacteria capable of utilizing PAHs were isolated, purified and characterized of 16S rRNA gene by molecular techniques using polymerase chain reaction (PCR), with specific universal primers (forward and reverse) and were sequenced. Bacteria identified were Bacillus, Arthrobacter and Staphylococcus species. Percentage reduction in PAHs was measured using automated soxhlet extractor with dichloromethane coupled with gas chromatography/mass spectrometry. Results from PAH measurements showed reduction between 77% and 99%. Co-composting of spiked soils with animal manures enhanced the reduction in PAHs.

onyedika.ubani@gmail.com

Effect of activating Lacto Peroxidase System (LPS) on quality and storage stability of soft cheese

Rashida Parveen[1], Rabia Kausar[2], Ayesha Sameen[1], Muhammad Issa Khan[1] and Neelum Sana[3]
[1]University of Agriculture Faisalabad, Pakistan
[2]Dalda Foods Private Limited, Pakistan
[3]Nestle Milk Pack Private Limited, Pakistan

Utilization of intrinsic enzymatic activity to increase the quality and storage stability of food product is a novel biological and biochemical technique. The aim of present research was to minimize the microbial, physiochemical and protein degradation changes in soft cheese to enhance its quality and shelf life by activating lacto peroxidase system in raw buffalo milk and ultimately using it for cheese production and studying its quality and storage stability. For this purpose buffalo milk samples were collected form Diary Research Farmat University of Agriculture Faisalabad, Pakistan. In collected milk samples LPS was activated by equimolar concentration at 20 ppm of NaSCN and H2O2 and resulting samples were used for soft cheese production. Analysis at 0, 7, 14 and 21 days of storage period were conducted under 4o C. Collected data were analyzed by using one way analysis of variance under completely randomized design (CRD). Means were compared by using LSD test at probability level of $P<0.05$. Results showed least contamination in microbial count especially salt tolerant bacteria at the end of 21 days storage period. Significantly lowered coliform, yeasts, molds and bacterial count ($p<0.05$) were observed in LPS activated cheese samples as compared to other. Moreover, proteolysis results determined by Urea-PAGE gel electrophoresis of casein fractions extracted from the three samples showed least value for LPS treated cheese sample as compared to others. Hence, the present study supports the Lacto Peroxidase System (LPS) as a quality-cum-economical preservative technique as compared to other techniques in practice.

rashidaparveen73@yahoo.com