

BOOK OF ABSTRACTS



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सत्यमेव जयते



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30th Swadeshi Science Congress

25-27 May 2023

National Conference on Holistic Approach for a Sustainable Lifestyle
Perspectives from Indian Knowledge System at NIT - Calicut



Organized by:
Swadeshi Science Movement-Kerala
in association with
National Institute of Technology (NIT), Calicut

Supported by:
Council of Scientific and Industrial Research (CSIR),
Govt. of India
Ministry of Earth Sciences (MoES), Govt. of India

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Focal Theme

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(Kerala Chapter of Vijnana Bharati, New Delhi)

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BBR/11 Background evidence of exploitation of ketamine usage - *Megha, K.B.,*

like acid production, flavuor production and exopolysaccharide production. The activity of selected strains of yeast and LAB at different temperature were monitored. Based on these results *Limosilactobacillus fermentum* ADMH 12 and *Pichia kudriavzevii* Y01 were selected for development of LAB-yeast co-culture. Thayir was prepared in cow milk using monocultures and co-cultures of selected combination. Physico-chemical properties, texture profile analysis and sensory evaluation of the products were evaluated. The cultures were then preserved by freeze drying using different cryoprotectants viz., skim milk, trehalose, sucrose, lactose and their combinations. The viability of freeze dried cultures were evaluated during storage up to 90 days. The results of the study showed significant difference in acidity of thayir prepared using different treatments. The LAB-yeast co-culture produced thayir with better textural and sensorial attributes. Shelf life evaluation of lyophilized powder showed that maximum protection to LAB was offered by sucrose and to yeast by trehalose.

BBR/02

Optimization of Single Cell Protein Production from Easily Available Vegetable *Cucumis sativus* by *Saccharomyces cerevisiae* Through Submerged Fermentation

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Single cell protein (SCP) is a rich source of protein which can be used as an alternative source of protein replacing the highly expensive protein meal. It is a refined edible protein extracted from pure microbial cultures from dead or dried cell biomass. In the day-to-day scenario people are not getting enough nutrients; hence by the production of the single cell protein it becomes easier for people to get enough protein. The present study focuses on the production of SCP from a cheap and easily available vegetable *Cucumis sativus* by using *Saccharomyces cerevisiae* through fermentation. The method utilizes *C. sativus* as the substrate for the production of single cell protein. Bakers yeast or *S. cerevisiae* is the microorganism used for the process of submerged fermentation in an Erlenmeyer flask. After fermentation, the biomass and protein content were determined. The effect of various factors such as incubation period, temperature, pH,

carbon source, nitrogen source and additives on SCP production were analyzed using one factor at a time (OFAT) approach. The present study focused on SCP production from *C. sativus* using *S. cerevisiae* under submerged fermentation. The production parameters were optimized using one factor at a time (OFAT) approach. The factors considered were incubation period, temperature, pH, carbon source, nitrogen source. The optimization resulted in significant increase in SCP production. The study presents a laboratory feasible method for the production of Single Cell Protein with easily available raw material. The present work can be extended to industrial scale production of SCP, which can be used as a nutritional supplement.

BBR/03

Vibrational Intervention Facilitating Neurite Outgrowth

Nayana, J., Saranya, S.S., Sreekala, B.P., Manoj Komath, Anantharaman, I., Varma, H.K. and Francis B. Fernandez

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Vibrational methods have been used from time immemorial as part of exercise or therapy to generate favourable outcomes. Mechanical signals associated with exercise are expressed in the form of low intensity vibrations and could combat the effects of senescence. Demonstrating the effects of such systems have not been dealt with in detail by interventional studies that provide a controlled environment for assessment and calibrating responses as required. *In vitro* cell culture provides a large amount of information on the ability of cells to function in a simulated environment. This allows for the evaluation of their response to various stimuli and predict impact of therapeutic interventions or active molecules. The study aims to close the knowledge gap with respect to application of these low intensity vibrations in a cell culture environment. We have investigated the activity of Neuro 2A (N2a), a mouse neural crest-derived cell line on exposure to a vibrational intervention. The cell line has been extensively used to study neuronal differentiation, axonal growth and signalling pathways. Based on controlled conditions and input of designed vibrational intervention, we were able to observe increased rates of neuronal outgrowth compared to control groups. Neuronal outgrowth is associated with increased cellular metabolism, the developing nervous systems and