ascent
FESTIVAL 2019

International Conference on

CAPACITY BUILDING FOR RESEARCH AND INNOVATION IN DISASTER RESILIENCE

BOOK OF ABSTRACTS AND PROCEEDINGS

14th-18th January 2019
Cinnamon Lakeside | University of Moratuwa | University of Colombo
Colombo-Sri Lanka

Organised by:

University of Moratuwa & University of Colombo

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Co-funded by the Erasmus+ Programme of the European Union
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Application of Food Technology to Build Up Resilience by Energizing Vigour of Grieving People During Disasters

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Abstract:

If inhabitants resided in disastrous areas and encountered with natural calamities, anxiously struggle to fulfil their basic needs such as shelter, food, water, basic medicine, cloth, hygienic environment, etc. Under this circumstance, initially, the demoralized persons are vigorously wandering in the turbulent environment while shedding their energy to accomplish those requirements. Thus, they are gradually becoming exhausted due to fatigue, desperation, and competitiveness. Hence, the aim of this study was to develop a chewable or lickable confectionery to quell fatigue while rejuvenating the vigour of suffering persons using plant-based constitutions. Three categories of physically abled groups, such as youth (aged 20-30y), labour-shading workers and professional service providers were selected from vulnerable areas and subjected to this study. A preliminary survey was conducted by interviewing aforesaid social groups to identify their attitudes, behaviours, and experiences regarding the vulnerable situation. Thereafter a confectionary product was developed by impregnating plant-based phytochemicals in berries of *Piper nigrum*, beans of *Coffea arabica*, the bark of *Cinnamomumverum* and rhizomes of *Zingiberofficinaleo* quell fatigue. Survey findings, as well as existing knowledge, were taken into consideration in developing the product. Moreover, the efficiency of the product was corroborated in terms of micro-sleepiness, apathy, and lethargic attitudes through a mass scale survey along with an eye-tracking software-based method after taking ethical clearance from Ethics Review Committee, Faculty of Medicine, USJP. The preliminary survey results revealed that psychological state, bodily status along with diurnal factors such as light intensity, the frequency of sound, CO_2 concentration and temperature were the critical contributory factors for lethargic behavior of the occupants in the distant areas. And boosting the self-confident, keep on mortar function, using chemical energy, creating gustatory stung, astonish olfactory and tingling actions were also identified as major factors to suppress lethargic behavior. The developed product was also sensorally acceptable for appearance, mouthfeel, odor and overall acceptability at 0.95 confident level. The active constituents in the confection namely piperine, caffeine, cinnamaldehyde and gingerol to suppress lethargic behaviour were 12.727, 5.277, 1.333 and 0.533 mg respectively which were in compliance with the WHO standards. The eye tracking software has also disclosed that

the developed product was capable of keepingan eyea fresh at least for 1hour after consuming. This finding indicates the confection was capable of diminishing the apathy because of rejuvenatedeye movements. Nevertheless, the mass scale survey findings endorsed the confection was capable of suppressing fatigue completely, controlled at a satisfactory level and fails to control for 15, 65 and 15% of the respondents respectively and 35, 30, 20 and 15% expressed that they didn't feel fatigue 1-2, <1, 2-3, 3-4 h correspondingly without any adverse effects or allergies by consuming the product.

Keywords: resilience, disasters, fatigue, vigour, confectionary, micro-sleepiness

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Paper id: 135