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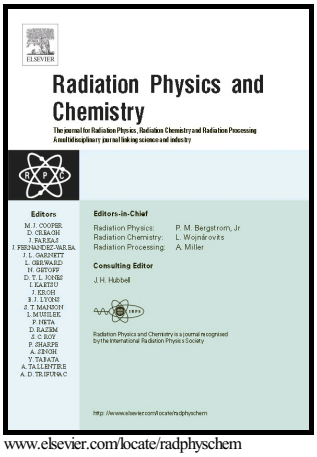

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PII: S0969-806X(16)30545-X
DOI: http://dx.doi.org/10.1016/j.radphyschem.2016.10.014
Reference: RPC7302

To appear in: *Radiation Physics and Chemistry*

Received date: 5 July 2016
Revised date: 1 October 2016
Accepted date: 20 October 2016

Cite this article as: Manoj D. Mulmule, Shankar M. Shimmy, Vaishali Bambole, Sahayog N. Jamdar, K.P. Rawat and K.S.S. Sarma, Combination of electron beam irradiation and thermal treatment to enhance the shelf-life of traditional Indian fermented food (Idli), *Radiation Physics and Chemistry* http://dx.doi.org/10.1016/j.radphyschem.2016.10.014

Combination of electron beam irradiation and thermal treatment to enhance the shelf-life of traditional Indian fermented food (*Idli*)

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Abstract

Idli, a steam-cooked breakfast food item consumed in India, is famous as a staple food for its spongy texture and unique fermented taste. *Idli* preparation is a time consuming process; although instant *Idli* pre-mixes as powder or batter are available in the market, they do not have the distinctive taste and aroma similar to the *Idli* prepared at home. Hence ready-to-eat (RTE) form of this food is in demand. Therefore, an attempt was made to prepare RTE *Idli* bearing similar taste as home-cooked *Idli* with an extended shelf-life of up to two months at an ambient temperature using Electron Beam Irradiation (EBI) at dosages 2.5 kGy, 5 kGy and 7.5 kGy and combination processing comprised of EBI dosage at 2.5 kGy and thermal treatment (80^0C for 20 minutes). The treated *Idli*'s were microbiologically and sensorially evaluated at storage periods of zero day, 14 days, 30 days and 60 days. *Idli's* irradiated at 7.5 kGy and subjected to combination processing at 2.5 kGy and thermal treatment were shelf-stable for 60 days. 2.5 kGy and 5 kGy radiation dosages alone were not sufficient to preserve *Idli* samples for more than 14 days. Undesirable change in sensory properties of *Idli* was observed at an EBI dosage of 7.5 kGy. Sensory properties of combination processed *Idli*'s were found to undergo minor change over the storage period. The present work suggests that lowest radiation dosage in combination with thermal treatment could be useful to achieve the extended shelf-life without considerably impairing the organoleptic quality of Ready-to-Eat *Idli*.

Keywords