Food & Nutrition: Current Research
FNCR, 3(S1): 9
www.scitcentral.com

ISSN: 2638-1095

Abstract: Open Access

Microbial Inhibition of Kappa-Carrageenan Filled with Nano rod-Rich Zinc Oxide (Kc/ZnO-N)

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Published September 22, 2020

ABSTRACT

A natural polymer, carrageenan is a product derived from the extract of seaweeds. With its bioavailability at low cost and biodegradability, carrageenan has been gaining vast applications and researches this past year. On the other hand, nanoparticles have indulged the world of science with new techniques and approaches. Nano rod-rich zinc oxide has been used against *E. coli* and *S. aureus* in different researches with results in the decrease of bacterial population. In this approach, kC was filled with ZnO-N and was used as biocomposite films and in textile. Anti-microbial analysis was done against four bacteria: *Escherichia coli*, *Staphylococcus aureus*, *Enterobacter aerogenes*, and *Pseudomonas aeruginosa*. Bacterial effects of the film and in textile were determined using the zone of inhibition. Results showed that the film and textile with kC/ZnO-N exhibited good antimicrobial property to the bacterial sample except *P. aeruginosa*. The result of this study might be a basis for new drug capsule formulation and enhanced textile preparation with greater microbial inhibition.

Keywords: Nanorod-rich zinc oxide (ZnO-N), Microbial inhibition, Kappa-carrageenan (kC)

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Citation: Brensis JAH, Dagalea FMS & Cui-Lim KMR. (2020) Microbial Inhibition of Kappa-Carrageenan Filled with Nano rod-Rich Zinc Oxide (Kc/Zno-N). Food Nutr Current Res, 3(S1): 9.