

Synthesis and characterization of poly(acrylic acid) nanogel containing silver nano particle and their antibacterial properties

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A buccal delivery system provides a much milder environment for drug delivery compared to an oral delivery which presents a hostile environment for drugs, especially proteins and polypeptides owing to acid hydrolysis. Local delivery in an oral cavity has particular applications in the treatment of toothaches, periodontal disease, and bacterial infections. Poly(acrylic acid) (PAA) and its crosslinked commercial powder forms, usually show strong mucoadhesive properties. However, PAA alone has limitations as a mucoadhesive drug carrier owing to its high water solubility, which may be dissolved before the drug is delivered across the membrane. The aim of the present study is to develop a suitable PAA-based mucoadhesive which might have potential for the localized prolonged delivery of active agents into an oral cavity. In this experiment, PAA and polyethylene glycol (PEG) were selected for preparing the bioadhesive hydrogel adhering to mucosal surfaces using a radiation process.

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An analytic approximate expression of the intensity of the wear process of the nanosurface of the sliding bearings of piston machines made with self lubricating materials

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Contact problems in mechanical systems remain the most important aspect of engineering and applied sciences in our modern world. With the recent advancement of nano and macro mechanics, new and interesting phenomena have been observed even though it is clear that many possibilities abound in this field. This paper presents the mathematical modeling of the wear process of the nanosurface of the sliding bearing of piston machines made with self lubricating materials employing elements of nanomechanics. The differential equation governing this process was established and solved using the Adomian Decomposition Method (ADM). Using the ADM, an approximate analytic expression for the velocity of the wear process and most importantly the intensity of the wear process were deduced in this paper. The expression for the intensity of the wear process of the nanosurface of the sliding bearings of piston machines made with self lubricating materials given in this work enables one to determine the durability of the sliding bearings.

Biography

Nwamba Joshua Ikechukwu is currently doing his M.Sc. program in Applied Mathematics and Modeling in the University of Nigeria, Nsukka. He has published up to 5 papers in reputed journals.

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Synthesis of hybrid black toner from waste toner using nano technology-Optimization technique

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The toner is used in photocopiers to form the latent electrical image on the drum. The paper picks up the toner particles (image), when it slides over the drum. Approximately 10% of toner particles are left over the drum due to specific factors. This left out toner is cleaned by the unit to ensure the copy quality of the proceeding copies. This left out toner is called as waste toner and is collected in cleaner sump. If this waste toner is used in the photocopiers, the quality of the copier is reduced. The waste toner is mixed in proportion with Carbon Black Nano powder and original toner to get Hybrid Carbon Black Toner. The original toner is the toner prescribed for the photocopier by the manufacturer. By implementation of this technique, the cost of photocopy can be reduced and the quality of the photocopy can be increased.

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