7-11 JULY 2024
NANOSMAT Barcelona
15th International Conference on Surfaces, Coatings and Nanostructured Materials
www.nanosmat2024.com

ABSTRACT:

The Application of Carbon Based Nanomaterials in Food Packaging System - Challenges for the Future

K.A. Mitura 1,2
1Faculty of Mechanical Engineering, Koszalin University of Technology, Śniadeckich 2, Koszalin 75-453, Poland
2Technical University of Liberec, Studentská 1402/2, 461 17 Liberec 1, Czech Republic.

The issue of functionalization of carbon based nanomaterials including carbon allotropes and other carbon varieties is widely cited in the world literature due to the research potential and the possibility of biomedical applications. Nanodiamonds are already used in the cosmetics industry and implemented in the packaging industry. designing bioactive, protective and pathogenic flora food packaging is the basic justification for the implementation of this project. Modification by graphene family nanomaterials of food packages can improve the antioxidant properties but it is not determined by graphene properties unlike diamond. Biological activity and innovative nanomaterials with appropriate properties may be helpful. These factors can extend the shelf life of food. The studies included the measurements of anisidine and peroxide number in sunflower oil in the presence of unmodified and modified detonation nanodiamonds and flake graphene flake. The results indicate that the time to stop sunflower oil from becoming rancid depends on the type of nanodiamond surface modification. The graphene flake powder inhibits the same level of observation all the time. The relationship between antioxidant and bactericidal properties of Carbon Based Nanomaterials is a key issue is crucial for the development of active food packaging with the presence of carbon nanostructures.

[1] K.Mitura, K.Wyrębski, P.Zarzycki, (2017), Bioactive food packaging with nanodiamond particles manufactured by detonation and plasma-chemical methods in : Nanotechnology in Food Industry, Vol. 7, chapter 9, ed. A.M. Grumezescu, ELSEVIER. pp. 295-328. http://dx.doi.org/10.1016/B978-0-12-804302-8.00009-1.