ADVANCEMENT OF NANOTECHNOLOGY EMBEDDED IN FOOD PACKAGING

[1]M.E. YA'ACOB, [2]N.B. ABDUL RAZAK, [3]N.I. ZULKIFLI, [4]F.N NAWAWI

[1,2,3,4]Department of Process and Food Engineering, Engineering Faculty, Universiti Putra Malaysia, 43400, Serdang, Selangor, Malaysia

Abstract- In recent years, there has been a marked increase in the interest in use of biodegradable materials in packaging. The principal function of packaging is protection and preservation of food from external contamination. Retardation of deterioration, extension of shelf life, and maintenance of quality and safety of packaged food are involved in this function. Biodegradable polymers are the polymers that fulfill all these functions without causing any threat to the environment. These biodegradable polymer materials will reduce the need for synthetic polymer production which is reducing pollution at a low cost and also producing a positive effect both environmentally and economically which is called eco-friendly materials. The expansion in these bio-based materials has several potential benefits for greenhouse gas balances and other environmental impacts over whole life cycles and in the use of renewable, rather than finite resources. It is intended that use of biodegradable materials will contribute to sustainability and reduction in the environmental impact associated with disposal of oil-based polymers. Vacuum packaging, edible packaging and nanotechnology packaging have their own advantages and disadvantages to the people, profit and planet. It is because they have some similarities in creating the packaging that give benefits to the both economically and environmentally. The method that will be reviewed is by nanotechnology method in food packaging sector. In this report, there are other types of conventional for packaging in food industry which available in Malaysia. Recommendations are given based on nanotechnology packaging as the best food packaging that can be applied in food industry.

Keywords- Food packaging, nanotechnology, nanosensor, antimicrobial packaging

HIGHLIGHTS

- To introduce the nanotechnology in food packaging in Malaysian food industries
- To identify the advantages of nanotechnology in food packaging
- To compare the method in food packaging which available in Malaysia
- To recommend the nanotechnology packaging is the best food packaging can be apply in food industry.