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Improving Carrot (*Daucus carota* L.) Fruit Storability by Edible Coating Containing Aloe Vera Gel and Essential Oil from Sesame Seed

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Abstract

The increasing interest and research activity in edible packaging have been motivated by both increasing consumer demand for safe, convenient, and stable foods and also awareness of the negative environmental impacts of non-biodegradable packaging waste.

The aim of this study was to improve carrot fruit storability by testing the effect of edible coating containg *Aloe vera* gel and essential oil from sesame seeds. The three experimental coatings were: *Aloe vera* gel (AVG), sesame oil (SO), mixture of *Aloe vera* gel and sesame oil (MAVGSO). The following parameters were measured: weight loss, ascorbic acid content, pH, total soluble solid, firmness and microbial qualities. The carrot were stored for seven weeks at ambient temperature. Prior to storage, the carrot samples were surface sterilised using 100 mg L^{-1} sodium hypochlorites. Results showed that edible coatings was effective in extending the shelf-life of carrot when compared to untreated control in the following order: MAVGSO > AVG > SO > Control. Results revealed that coatings hindered the growth of microorganisms significantly ($p < 0.\ 05$).

Development and evaluation of this indigenous and biodegradable edible coatings will help in prolonging the shelf-life of fruits and vegetables, thereby ensuring food security, poverty reduction and wealth creation in alignment with the objectives of United Nations Millennium Development Goals and Agricultural Transformation Agenda (ATA) of the Federal Government of Nigeria.

Keywords: *Aloe vera* gel, biodegradable, carrot, edible coatings, sesame oil

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