FRESH TOMATO FRUITS SHELF LIFE EXTENSION THROUGH THE APPLICATION OF CASSAVA STARCH AND SOY PROTEIN-BASED EDIBLE COATINGS

Chinma Chiemela Enyinnaya¹, Ariahu Charles Chukwuma², Abu Joseph Oneh², and Alakali Joseph²

¹Department of Food Science and Nutrition, Federal University of Technology, Minna, Nigeria.

²Department of Food Science and Technology, University of Agriculture, Makurdi, Nigeria.

The agro-ecological characteristics of the Savannah and Sahelian sub-regions of Nigeria favour the production of fruits and vegetables and other crops. Tomato, a climacteric fruit with short postharvest life is wasted during fruiting seasons in Nigeria due to poor storage, distribution and processing facilities. Edible coatings prepared from cassava starch and soy protein concentrate (90:10) containing 20% glycerol were applied to fresh tomato fruits using standard procedures. Tomato fruits coated with 90:10 (cassava starch: soy protein concentrate) coatings preserved better than the control samples as they recorded minimal weight loss (19.51% compared to 30.90% in uncoated tomato fruits), delayed changes in firmness, higher colour retention, total soluble solids, total titratable acidity as well as higher ascorbic acid retention (67.7% compared to 10.36% in uncoated tomato fruits) and enjoyed higher acceptability than the uncoated tomato fruits. The results obtained in this study showed that the use of 90:10 (cassava starch: soy protein concentrate) edible coatings on tomato fruits may be handy in extending the shelf life of tomato fruits for 14 days at 27±1°C. This could be valuable in reducing postharvest losses in tomato fruits given the preponderance of cassava and soy bean in this part of the globe.