Mass modelling and effects of fruit position on firmness and adhesiveness of banana variety Nipah

ABSTRACT

Fruits including banana are susceptible to damage especially during transportation. Nipah banana, also known as Musa acuminata balbisiana, has irregular shape and is short in length. This paper focuses on the physical and mechanical properties of Nipah banana. Mathematical models were developed to predict the mass of banana fruit based on the physical properties. Changes during ripening period in terms of the firmness and adhesiveness of Nipah banana were investigated at room temperature (25 °C) for three different positions in a finger. Peak positive and negative force was taken as firmness and adhesiveness, respectively. Results showed that the multiple regression modelling based on three dimensions had the highest R2 value. Values of firmness and adhesiveness decreased with the ripening days due to starch degradation and accumulation of soluble sugars. A similar trend was observed on the firmness for all three positions.