

Effect of machine parameters on physical and sensory properties (desirability) of coated peanut snacks

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ABSTRACT

Peanut coating is an important step in peanut burger production. Understanding the dynamic process of coating can better set up coating parameters and improve coating. In order to improve poor coating quality and high breakage rate of peanut seeds caused by unreasonable machine parameters of coating equipment. The combined effect of machine speed and the angle of tilt of coating pan was studied. From the result obtained, it was observed that the desirability of the coating increases with increase in speed from 25 to 31 rpm and then start to decrease when the speed was further increased from 32 to 45 rpm. However, the desirability remains constant as the tilt angle was increased from 25 to 30° and start to increase with further increase in tilt angle from 30 to 35°. The highest desirability of 93.2% was obtained when the speed was 30.76 rpm and the tilt angle is 35.00°. It was discovered that machine parameters affect the desirability of peanut burger snacks by the consuming consumers.

Keywords: Coating, quality, peanut, machine speed, tilt angle.

1.0 INTRODUCTION

Peanut (*Arachis hypogaea*), commonly known as groundnut, stands as a vital source of protein-rich crops, ranking as the fifth-largest oilseed crop globally, following soybeans, rapeseed, cottonseed, and sunflower seed (Adekola et al., 2018). It is an annual legume belonging to a member of the *Fabaceae* family and *Arachis genus* (Azuka and Chukwutem, 2022). It is believed to have originated in the Central American region and subsequently dispersed to various corners of the globe (Settaluri et al., 2012). With cultivation spanning approximately 26.4 million hectares worldwide, peanut production totals around 37.1 million metric tons, with an average yield of 1.4 metric tons per hectare. Developing nations account for a substantial 97% of the global cultivation area and 94% of the total production for this crop (FAO, 2011). Peanuts are being consumed across the globe in a diverse array of forms (Guimon and Guimon, 2012). Virtually every component of