

The Estimation of the Weight of Coconut Meat from the Exterior Properties with Inscribed Circle Theory

Bangbuangam, Kodchakorn (School: Princess Chulabhorn Science High School Phetchaburi)

Wisetchat, Sirikhwan (School: Princess Chulabhorn Science High School Phetchaburi)

Coconuts are economical crops that make lots of income for coconut farmers. Thai people like to use coconut meat which is the white flesh in a coconut to cook both savory and sweet recipes. Normally, consumers would like to buy a coconut with thick meat but it is difficult to select which coconut has thick meat without cracking it. The aim of this project is to propose a new technique to estimate the weight of coconut meat from the appearance of a coconut by observing the shape of the outer coat, especially the three peaks at the bottom of a coconut from an image. The three peaks of a coconut can be detected from an image of a coconut, the radius of a circle inscribed in a triangle generated from using three peaks as its vertices is calculated, and finally the weight of coconut meat is estimated. The relationship between the radius of a circle and the weight of coconut meat has been studied. To do so, we collected data by measuring the radius of a circle that is inscribed in a triangle generated from using the three peaks as its vertices and the longest radius of a coconut seed after cracking it open. Next, the ratio of the two radii is calculated using the inscribed circle theory and it is found that the average ratio is 1:5.19. Once, the ratio is known, it can be used to estimate the weight of coconut meat using spherical equations.