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

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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 it 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.

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