

A Proposed Design to Peel-off the Brown Skin of Coconut

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Coconut industry has stepped in to new ventures apart from just selling the coconut fruit to the local and international market. Even though every part of the coconut tree is being used, this research is mainly focused on food and beverage production from the coconut fruit. The outer shell of the coconut fruit needed to be removed and then the brown skin also needed to be removed before processing the fruit to produce value added products such as, coconut milk, desiccated coconut, pure coconut oil, virgin oil, toasted coconut chips (with and without flavour), refreshments made from coconut water. Generally, coconuts are de-watered (remove the inside water) by drilling the shell and the hard outer shell is removed by a de-shelling machine which then the brown skin is removed before processing further. This study concentrates on the removing of coconut brown skin which called peeling. There are several methods for peeling and the most popular one is the manually peeling using a knife which is called as paring knife method. It was evident that by peeling knife method, production rate cannot be increased without increasing the labour which the skilled labour is extremely difficult to find and takes considerable amount for training. Even with skilled labour it was found that a considerable amount of waste of the coconut fruit occurs. This study proposes and develops a novel method to eliminate the mentioned drawbacks of peeling by steaming and then washing using high pressurized water jet. The design was optimized by conducting arranged experiments along with trial and error method. The final product of the coconut fruit satisfies all the requirements needed to be processed. The productivity is improved by 47% and the reduction of wastage is 57%. Along with that it minimize labour force, to improve productivity and to find a solution for ulcerating of hands due to oily condition were achieved by introducing the proposed machine.

Keywords: Coconut based food & beverage, Peeling off brown skin