

**EVALUATION OF A MODIFIED BATCH-TYPE
POTATO (*Solanum tuberosum*) SKINNER**

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ABSTRACT

NIMES, EDRIAN KEITH P., Department of Agricultural and Biosystems Engineering, College of Engineering, Central Luzon State University, Science City of Muñoz, Nueva Ecija, Philippines, **June 2023, EVALUATION OF A MODIFIED BATCH-TYPE POTATO (*Solanum tuberosum*) SKINNER**

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Potato skinner machines offer a timesaving and labor-efficient solution by combining two processes in food processing: peeling potatoes and preparation for further handling. The device is particularly useful for recipes or fast-food chains where the removal of potato skin is necessary for taste and appearance. By automating the peeling process, the machine enhances speed and efficiency and enables food processing companies to peel a larger quantity of potatoes in less time, thus improving the overall productivity.

The machine modifications, including the incorporation of a water-letting system and food-grade nylon brushes, significantly improved its functionality. The water-letting system provided a continuous water supply for efficient cleaning, while the nylon brushes effectively removed potato skins. Additionally, a sliding mechanism was implemented to prevent the rotating cylinder from shifting during loading and unloading operations. The treatment includes the diameter of the brush and the speed of the machine.

The results indicate a significant variation in the efficiency of the machine based on the thickness of brushes and the speed of the rotating drum. The inclusion of water in the process effectively removes dirt and debris during the washing phase enabling successful potato skinning. Based on the findings, the optimal configuration is achieved

by utilizing a 0.8 mm thickness brush at a rotational speed of 27 rpm, resulting to the highest efficiency recorded at 85.75%. The machine's initial cost was ₱67,412.00, which included the purchase cost and installation expenses. With an annual net income of ₱24,950.40, the expected return period is 2.7 years.

Keywords: potato; nylon brush; efficiency; revolutions per minute (rpm); skinner

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