# Separation Theory for Palm Kernel and Shell Mixture on a Spinning Disc

Author(s): OA Koya, MO Faborode

**Abstract**

The separation of palm kernel from the shell is an important process in the recovery of the kernel for use in vegetable oil production. The inherent shortcoming of the fertiliser spinner spreader, resulting in non-uniform distribution, has led to investigations into the possibility of its use in the separation of palm kernel from shell. The differences in the physical properties of the kernel and shell provided the basis for separation. Models describing the motion of the kernel and the shell on a spinning disc with vanes, feeding a segment at a time, were developed, and comparisons between the predictions and experimental results were made.

Discharge angles obtained from the predictive models and from the experiment were in close agreement. The experiment, however, indicated a mid-span, between the discharge angles for kernels and shells, containing the mixture. The models reasonably predict approximate ranges of discharge angles for palm kernels and shells on a spinning disc with specified diameter, friction coefficient and rotational speed.

**Keywords:** oil palm; spinning disc

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