

ABSTRACT

Drying is one of the crucial processes in seeds production. Generally, this process is done traditionally by drying the product directly under the sun. However, this has many shortcomings which include the product being susceptible to pests, weather exposure, and moisture-prone pathogens. The device is made to combine the traditional and mechanical drying process through forced convection mechanism so the drying process can run stably in any weather conditions.

In this study, temperature data inside the device will be processed using PID control system. The device is integrated with heating elements, intake fans, and exhaust ducts to maintain stable temperature in the inside. Moisture content of the product will be monitored so the user knows moisture level of the product they are drying. In addition to hybrid method, this device is also able to operate natural and forced convection drying methods.

The result of this study is that the device has been successful in operating natural drying, forced convection, and hybrid drying methods. Hybrid drying method used in this study has been proven to reduce water content by up to 62.71%. When compared, hybrid drying method has the lowest final product moisture content, followed by natural drying and forced convection.

Keywords: *Seeds, Drying, Natural, Convection, Hybrid.*