

ABSTRACT

The process of drying sale bananas is an important step in banana processing to increase shelf life and quality of the final product. The drying methods used can vary from traditional methods to the use of modern technology. The production of banana sales at the Ar Ridho Cijenuk Islamic boarding school still uses the conventional method, namely drying in the sun. The conventional drying process is very dependent on weather conditions. This affects the drying duration of the banana sale. Apart from that, the drying process in open spaces is prone to contamination by bacteria and microorganisms in the surrounding environment.

One effort to overcome this problem is to use a food drying system. The food drying system created has a heat source that comes from an incinerator. The incinerator heat will be sent to the drying cabinet using a heat exchanger. The aim of using a heat exchanger is to ensure that hot air flows into the cupboard and is not mixed with particles or pollution resulting from the process of burning waste in the incinerator. Then, there is a cabinet temperature monitoring system to make it easier for practitioners to monitor the drying process. Tests were carried out to determine the reduction in water content in bananas and the duration of drying using a food drying system and conventional methods.

Before comparing the two methods, testing was carried out using a fixed variable in the form of 4 variations of blower speed to obtain a blower speed that met the requirements. Only after that, testing was carried out by comparing the reduction in drying water content using a food drying system and conventional methods. The duration of the test uses 4 times variations, namely 1 hour, 2 hours, 3 hours and 6 hours using 10 bananas. The results of the test showed that the blower used a speed of 5 m/s met the requirements to reach the drying temperature for banana sales. In addition, the longer the drying duration, the greater the reduction in water content. The reduction in water content is obtained from the difference between the initial mass and the final mass of the dried banana. From this test, drying using a food drying system results in a greater reduction in water content compared to conventional methods. With the results of these tests, the use of drying cabinets can increase productivity and maintain hygienic drying of banana sales, thereby having the opportunity to improve economic aspects at the Ar Ridho Islamic Boarding School. Apart from that, the use of incinerators as an alternative heat source can reduce organic waste in the Ar Ridho Islamic boarding school environment.

Keywords: Food Dryer, Incinerator, Organic Waste