ABSTRACT

THE PATTERN OF CO₂ CONCENTRATION IN THE CONTAINER WITH ADDITIONAL OF EXTERNAL AIR AND CO₂

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One of the most important aspect in the enhancement of agricultural crop is influenced by the post-harvest handling. It related to the problem of yield loss, low quality, and low commodity price. Basically, fruit and vegetable storage purposes are to control the rate of metabolic processes and to extend crop life. The modified atmosphere storage (MAS) or controlled atmosphere storage (CAS) is a technology to extend the shelf life of fruits and vegetables. With this system, we modified the composition of atmosphere storage in order to differ it with the normal atmospheric condition.

The purpose of this study is to determine the pattern of CO₂ concentration in the box container that will be used in the storage. This research was conducted in April - June 2013 The Power Laboratory, Equipment, Agricultural Machinery Agricultural Engineering Department, University of Lampung. In this study, the air were supplied from a compressor and CO₂ from CO₂ gas cylinder which will then be put into the box container with 188 cm × 113 cm × 150 cm dimensions for 2 hours, followed by sampling in conditions without charging the air and CO₂ for 4 hours. The sampling was carried out every 15 minutes or so during the charging process air and CO₂, and 1 hour once the charging process without air and CO₂.

The results of this study indicate that the total of CO₂ in each treatment had a similar trend. The highest percentage of CO₂ for all treatments occurred in the minute of 120 with specific range between 13,85% to 16,93%. Furthermore, the highest average of CO₂ per centation for all treatments is about 15,24%. While in the conditions without charging, the amount of CO₂ finally at 5,92%. The largest CO₂ rate loss occured at treatment C and F for about 76,34 l/h, on the other hand, the smallest loss happened in the treatment D in the value of 67,45 l/h. Moreover, the decreasing period of CO₂ reached 1% for the longest in which contained at treatment A for 514,73 minutes and, the fastest treatment were due at treatment F which consume 491,33 minutes long.