



## CHAPTER 7

### CONCLUSIONS AND RECOMMENDATIONS

From the results that discussed in chapter 6 we can conclude that;

1. The treatment of rice bran in fluidized bed using hot air at temp.  $105^{\circ}\text{C}$  and time 35 minutes or temp.  $115^{\circ}\text{C}$  and time 5 minutes can stop the deterioration of rice bran.
2. The storage system of the treated rice bran is one of the important factors causing deterioration. For example for the treated rice bran at temp.  $105^{\circ}\text{C}$ , time 35 minutes, the hydrolysis constant(K) is equal to  $69.23 \times 10^{-5}$  for cloth bag containers but the hydrolysis constant(K) is equal to zero for polyethylene bag containers.
3. The quantity of oil in the treated rice bran does not decrease if the treatment temperature is not greater than  $115^{\circ}\text{C}$ .
4. The color of oil that obtained from treated rice bran at higher temperatures is darker than that obtained at lower temperatures. The critical temperature during fluidized bed heating is  $125^{\circ}\text{C}$ .

#### RECOMMENDATIONS FOR FURTHER WORK

The results from this work are interesting and may have many applications. The comments for the further works are;

1. The treated rice bran ought to be stored as long as possible to determine the most appropriate length of time for storage.
2. Rice bran ought to be treated in continuous fluidized

bed treatment as such a process is more suitable in industrial applications.

3. The feasibility study of this stabilization process should be done.
4. The delivery time of treated rice bran from the column to a container is important, the delivery times increase, the treated rice bran can absorb moisture from air so that moisture content of the treated rice bran must increase. When moisture content of treated rice bran increases, the activity of enzyme may reverse during storage.
5. In the first week of storage the formation rate of free fatty acid in treated rice bran, that stored in cloth bag, was so high above the underisable level. In practice, we should study the formation rate of this period of time (the first week after treatment and unstore in any kinds of container). For a advantage, sometime, rice bran after treatment we can not store in container immediately so that we should know the possible length of times that the treated rice bran can be left out side container after treatment by having no effect on deterioration during storage in container.