**ABSTRACT**

The purpose of this study is to investigate the interaction between tempereture incubation with concentrations of carbon source on the growth of *Rhizopus oligosporus* in the manucfacture of tempeh, and knowing *Rhizopus oligosporus* mold growth in fermetation media tempeh rice reaulting in significant amonts.

Prelimary research conducted by the yeast manufacture carbon source selected research that generates the highest number of cultures *Rhizopus oligosporus*, seing the growth of *Rhizopus oligosporus* in the calculation of the water content and the calculation of the value of OD (Optical density) and the number of cells in the resulting yeast.

The design used was a randomized block design with 3x3 factorial design replicated 3 times. The factor used in incubation temperature for fermetation (f) (f1 = T : 270C, f2 = T : 300C, f3 = T : 350C) and the concentration of carbon source karbon (k) (k1 = 0,5 %, k2 = 0,75 %, k3 = 1 %).

The best formulation in the preliminary study were sampled two, judging from the number of cells that grow most 285 cells. Primary research, the manufacture of tempeh with the selected carbon source is a carbon source at a concetration of 75% urea (f2k2), seen from the highest number of cells, further determine incubation temperature used. In the analysist of water content, resulting tempeh every variation of the concentration of the carbon source used for incubation temperatures produce different value. At the concetration of 0,75% was selected which produce more value rises. In the analysist OD (Optical density) values tempeh which has value of OD (Optical density) at a temperature of 35OC best with 1% urea concetration (f3k3), because it has research value of OD (Optical density) the lowest.