The aim of this research was to find suitable substrate for lipase production in solid-state fermentation in the laboratory scale. The effect of substrate initial moisture content for lipase production was investigated using 100% wheat bran as substrate. The inoculum of 5% *Rhizopus oligosporus* was added to substrate which was adjusted to 50, 55 and 60% of moisture content, then incubated at 30 ^{0}C for 7 days. The results showed that 55% of moisture content gave the highest lipase activity of 14.08 unit / g dry substrate at 96 hr after fermentation. In addition, lipase production using 100% substrate of sunflower kernel, wheat bran, soybean (whole seed), sesame, peanut, rice bran, the mixture of wheat bran and sesame at the percentage of 75:25 and the mixture of wheat bran and soybean meal at the percentage of 75:25 were adjusted to 55% moisture content. The experiment showed that the highest lipase activity gave 1.94 (at 48 hr), 7.83, 4.85, 3.34, 2.13, 0.58, 2.21(at 96 hr) and 5.42 (at 72 hr) unit / g dry substrate, respectively. Therefore, the mixture of wheat bran and soybean meal was chosen for further study of lipase production.

According to the suitable percentage of wheat bran and soybean meal of 75 and 25. Then urea and glucose ratio of 1:3, 1.5:3, 1:8 and 1.5:8 were added to the mixture to enhance the lipase productivity and the mixture was incubated at 30 ^{0}C for 4 days. The results illustrated that urea and glucose ratio of 1.5:8 gave the highest lipase activity of 18.13 unit / g dry substrate at 84 hr. Moreover, the highest lipase activity of 11.24 unit / g dry substrate at 72 hr was obtained when 5% oil and the ratio of urea and glucose of 1.5:8 were added to the mixture.

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Student's signature	Thesis Advisor's signature	