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| Tnesis Title    | Development in Mathematical Model of Temperature and Humidity Change in Solar Incubator |
| Tnesis Credits  | 12  |
| Candidate       | Mr.Veerawat Peerawanitkul   |
| Supervisors     | Asst. Prof. Dr.Sirichai Thepa<br>Asst. Prof. Dr.Mana Amornkitbamrung                    |
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#### Abstract

This thesis is arranged to study the possibility of the mathematical model for temperature and relative humidity prediction in a solar incubator. This model has been developed in order to simulate the problem by hours. The result of this model is able to predict the water temperature in the storage tank, air temperature and relative humidity in solar incubator as well as the result of experiment. Accuracy value about  $\pm 2.1\%$ ,  $\pm 1.8\%$  and  $\pm 3.5\%$  are accepted for water temperature in the storage tank, air temperature and relative humidity in solar incubator respectively.

The further study of solar collector system with storage tank capacity has found that an area  $8 \text{ m}^2$  of solar collector system with 250 litre of storage tank correspond to the size of 720 eggs of an incubator which has been supplied heat by the solar collector system for 46 hours without radiation. The case study of insulation in an incubator has found that 1 inch foam insulator sealed in the incubator has been able to reduce heat lost through the wall incubator. Consequently, the heat supplied by the storage tank can reduce and supply heat to incubator for 5 hours in comparison with the incubator without seal.