

SUMMARY

Comparison of logit and probit models to predict development of Egg *Anopheles sundaicus* mosquitoes

Statistical modeling of logit and probit models necessary to predict the life of the *Anopheles* mosquito egg development *sundaicus*. Model comparison was conducted to analyze the factors that influence the development of the *Anopheles* mosquito eggs *sundaicus*. Furthermore, the method chosen by the smallest error mosquito eggs *sundaicus*. This study uses secondary data from the study the influence of salinity on the development of egg of *Anopheles sundaicus* mosquito

The goal research to know the difference predictive model using logit models and probit models to determine the factors that influence the development of eggs of *Anopheles sundaicus* mosquito. Analyzing differences in parameter estimates logit models with probit model to predict the development of eggs of *Anopheles sundaicus* mosquito. Comparing logit model and probit model to predict the development of egg of *Anopheles sundaicus* mosquito.

This study uses non-reactive methods, ie a method that does not invite specific reactions of the subjects studied. conducted from April to June 2011. Source data is secondary data using 420 eggs and the mosquito *Anopheles sundaicus* placed in 42 vessels. Each vessel contained 10 eggs of mosquitoes. Salinity set at levels of 5% -25%. All mosquito eggs set at pH 6-8, is at a temperature of 20 ° C - 28 ° C, pH and temperature is optimal for the development egg of *Anopheles sundaicus* mosquito

The results of the research analysis obtained as follows

1. The results of variable salinity parameter estimates indicate that the significance of salinity and intercept < 0.05 for the logit and probit transformations log showed the influence. If no transformation significance the intercept value > 0.05 means no influence. Smallest residual sum of squares contained in the log logit model, is the best model at variable salinity. ED50 / LD50 on log probit model is at 6.1% salinity, whereas no transformation at 0.4% salinity. ED50 / LD50 in the log logit model is at 6.3% salinity, whereas no transformation at 1.6% salinity.
2. PH variable parameter estimation results indicate that the significance of PH and intercept values < 0.05 in all models of logit and probit, without the transformation or with the transformation indicates the influence. Smallest residual sum of squares contained in the log probit model, is the best model at variable pH. ED50 / LD50 on log probit models are at pH 7.478, while no transformation at pH 7.468. ED50 / LD50 in the log logit models are at pH 7.516, while no transformation at pH 7.509.
3. Temperature variable parameter estimation results indicate that the significance of the temperature and the intercept values > 0.05 in all models of logit and probit, without the transformation or with the transformation means no influence. Smallest residual sum of squares contained in the log logit model, is the best model at variable temperatures. ED50 / LD50 on log probit model is at a temperature of 27.295, while no transformation at

a temperature of 27.207. ED50 / LD50 in the log logit model is at a temperature of 27.281, while no transformation at a temperature of 27.194.

4. The results of parameter estimation variable salinity and pH showed that the significance of salinity and intercept <0.05 for the transformation of the log logit model only means of influence, on the other models in value >0.05 . While the significance of pH values all indicate the absence of influence. Smallest residual sum of squares contained in the log logit model, is the best model on variable salinity and PH.
5. The results of parameter estimation variable salinity and temperature showed that the significance of salinity values <0.05 in all models means that there is influence on temperatures, while a significance value and intercept >0.05 indicates no effect on all models. Smallest residual sum of squares contained in the log logit model, is the best model on variable salinity and temperature.
6. The results of the estimated parameters pH and temperature variables showed that the significance value of pH <0.05 in all models, while no influence on the temperature and the significance of intercept >0.05 in all models showed no effect. Smallest residual sum of squares contained in the log logit model, is the best model at variable pH and temperature.
7. The results of parameter estimation variable salinity, pH and temperature showed that the significance value of pH <0.05 in all models means no influence, while the significance of the salinity, temperature and intercept >0.05 in all models showed no effect. Smallest residual sum of squares contained in the log logit model, is the best model on the variable salinity, pH and temperature.
8. P of the goodness of fit of all models of $0.00 <0.05$ indicates that all the models that form does not fit

With reference to the results of data analysis and discussion of the analysis is best used to predict the dose response relationships or effect levels / specific dose of a response bioassay method used. The most appropriate model in this method is a probit or logit model .

Proposed research model selection primarily determined by some statistical considerations. If found an association of non linear transformations then it should be done with the log, so it found a better model.

ABSTRACT

Comparison of logit and probit models for Predicting the Development of Eggs of *Anopheles sundaicus* mosquitoes

Modeling in the logit and probit models necessary to predict the life of *sundaicus* *Anopheles* mosquito egg development. Comparison of the best model selected with the smallest error rate. This study uses secondary data from the study the influence of salinity on egg development of the *Anopheles* mosquito research *sundaicus*. The aim of research to know the difference logit model and probit model to predict the development of eggs of the *Anopheles sundaicus* mosquito.

This study uses non-reactive methods, conducted from April to June 2011. Secondary data sources are data that uses 420 *Anopheles* mosquito eggs laid in 42 *sundaicus* tube / vessel. Each vessel contained 10 eggs of mosquitoes. Salinity set at levels of 5% -25%. All mosquito eggs set at pH 6-8 and is at a temperature of 20 ° C - 28 ° C, pH and temperature is optimal for the development of eggs of the *Anopheles sundaicus* mosquito.

Results of analysis showed that the variable salinity and pH influence, whereas temperature had no effect on the development of eggs of the *Anopheles sundaicus* mosquito. P of the goodness of fit of all models of $0.00 < 0.05$ indicates that all the models that form does not fit

Biossay method using probit or logit model is the best analysis to predict the dose response relationships or effect levels / specific dose of a particular response. Model selection is determined by some statistical considerations. If found an association of non linear transformations then it should be done with the log, so it found a better model.

Keywords: logit, probit, mosquito egg, *Anopheles sundaicus*