

## ACKNOWLEDGEMENT

First and foremost, praise and thank be to God, the almighty, who has granted countless blessing, knowledge, and opportunity to the writer, so that she has been finally able to accomplish her thesis. The writer hardly knows to start expressing her gratitude but for sure the gratitude goes to all those who have assisted her in the process of completing this thesis. It would be impossible to list all names but several people deserve her sincere and special thanks.

She gratefully acknowledges the deepest gratitude to her thesis supervisor, Syarifuddin, M.Sc, Ph.D., who has generously spent precious time in giving the guidance, encouragement, suggestion, and comments until this thesis comes to its present form. Her enormous appreciation is addressed Drs. Tri Harsono, M.Si., the head of Biology Department, Prof.Dr.rer.nat. Binari Manurung, M.Si., the coordinator of Bilingual Program, and Mr. Samsuddin for his administrative assistance. She heartily wishes to acknowledge Prof. Dr. Herbert Sipahutar M.Si., M.Sc., Drs. Tri Harsono, M.Si., and Dr. Hasruddin, M.Pd., as her examiners, for the valuable inputs to be included in this thesis. Special thanks are extended to Dr. Fauziah Harahap, M.Si., as academic supervisor, as well as to Drs. Sahlan Daulay, M.Pd., headmaster of SMA Negeri 3 Medan, Biology Teacher of Grade Ten, Dra. Hj. Rahmi Siregar., and to students' of class 10 Mia 4 and 10 Mia 5 academic year 2013/2014 for the cooperation during research.

Finally, she will forever be indebted to her beloved parents N. Barus, S.Pd., and M. Ginting, A.Md., for having given her unfailing support and encouragement during the academic year and the completion of this thesis, her lovely brother and sister, Michael Gunanta Barus, S.Si., S.Kom., Franky Ariston Barus, S.Kom., Evani Florentina Barus, S.Ag., Ida Laurenza Barus, S.S., thanks' to their support and prayers.

Last but not least, her heartfelt thanks also go to her friend Shelly Eka Putri, Hastika Juliana, Rafika Novianti, Herlina Manalu, sister Dina Kharida, S.Pd

and friends of the guidance, Frendi Jonathan Sinulingga for helping her discussing hard matter during the completion of this thesis and all friends from Biology Bilingual Program Year 2010 for their friendship and cooperation. It would be difficult to find adequate words to convey how much she owes the people. Lots of love and thank to all of you.

The author has tried as much as possible in completing this thesis, but the author realizes there are still many weaknesses in terms of both content and grammar. To the authors expect criticism and suggestions from readers for the perfection of this thesis. This thesis would be useful in the development of science education.

Medan, 17 July 2014

The Writer

Eka Sari Monica Barus

NIM. 4103342004