Acknowledgement

Finally this is the end of long and exhausting journey. I would never have been able to finish my dissertation without the guidance of my committee members, help from friends, and support from my family. It is my pleasure to express my sincere gratitude to all those who gave me the possibility to complete this thesis successfully.

First of all, I would like to express my deepest gratitude to my supervisor Prof. A.A. Broekhuis for his valuable guidance and countless support during my PhD time. Ton, thank you for accepting me as one of your PhD student and for your patience in guiding me through the research and writing phase. I appreciate your scientific thinking and ideas to develop and improve my research skills. I am also thanks to my co-supervisor Dr. Robert Manurung for guiding my research and supply the resources for my experiments. I would also like to express my sincere appreciation to Prof I G. Wenten for his valuable suggestion on how to execute research experiments and write it into a good scientific paper.

I would like to thank the members of the reading committee; Prof. F. Picchioni, Prof. M.J.E.C. van der Maarel, and Prof. J.P.M. Sanders for spending your precious time to evaluate my thesis.

I also thank Jan Henk Marsman and Leon Rohrbach for helping me with using the analytical instruments. I also appreciate the technical assistance of Anne Appeldoorn, Marcel de Vries and Erwin Wilbers during my PhD period. Henk van de Bovenkamp, thank you for teaching me how to use analytical instruments and experimental equipments and for fruitfull discussions. Thank you for your significant contribution to my research.

I am thankful to Marya de Jonge and Annette Korriniga-de Wit for their support in all administrative matters during my PhD time. To the project leaders of the Jatropha SPIN-KNAW project - Prof. H.J. Heeres and Dr Robert Manurung. Thanks to Alphons Navest and Tim Zwaagstra for their help regarding financial and administrative affairs. Thanks a lot to the Jatropha PhD students, Herman Hidayat, Ahmad Marasabesy, Gany Herianto, Dianika Lestari, Louis Daniel, M.Insanu, Laura Junistia, for support and sharing.


To PPIG members and friends: Nandang Mufti, Nisa Mufti, Guntur Fibriansyah, Intan Windyasari, Arramel, Puti Syahrani, Helmy Yusuf, Syarif Riyadi, Desti Alkano, Wahono, Robby Roswanda, Lia
Atwa, M. Iqbal, Erythrina Stavila, Panji Triadyaksa, Faizah Fulyani, Rachmawati Faturachman, Nur Aulia Oktaviani, Irfan Prabudiansyah, Patrick Manurung, Mackenzie Hadi, Cristina Avanti, Cyndy Soemadiredja, Wisnumurti Kristanto, Jerome E. Wirawan, ka Roga, Mba Ika, Tante Tini, Jeffry Tan, Nadia Godjali, Samuel Sugandi, Yanti, Dani Setiawan, Daniel, Tresnawati, Yenny Wijaya, Yuli, Yohanes Siem, Widyoseno Estitojo, Syura Aritya, Erlangga hidayunindra, Syafirizan, Muhammad Fatwadi, Arief Sudiyanto, Ari Sulindra, mba Agnes Andriani, mba Diah Ayuni, Henny Ramayani, Fegi Nurhabni, Naria Nurindah, Nella Susilani, Tetty, Frankie Mesker and whom their names are not mentioned here; thank you for making my stay in Groningen as lovely as home.

I would also like to thank Boy Arief Fachri, M. Yusuf Abdhu, Ria Abdilla, Anggita Prasanti, M. Gibran, mba Indi, mba Yessiana Arifa, Rosalina Wisastr, Louis Daniel, Nuriana Nababan, Ko Adi, Denisa E. Viantinus, Veronica Bunadi and Adrianus Leonardy for your endless friendship.

Pak Bambang and Pak Gita, thank you for helping my experiments at ITB. Thanks for helping me finding and dehulling jatropha seeds. To Anang Satria Chandranegara thanks for helping me to solve all computer problems.

To Pak Raymond Tjandrawinata, Pak Bambang Veriansyah and Pak Edward Wijojokusumo, thank you for giving me an opportunity to work at PT Dexa Laboratories of Biomolecular Science and finishing my PhD.

For members of PD mojang Geulis: Caroline, Anggi Shestita, Grace Mangindaan, Lita Tuentifian, Yohana Handoko, Anggi Maria Gunita, Theresia Ayu Saraswati, Theresia Monica Ginting for all support and prayers during my writing period.

To Puji Rahayu and Henny Windiasih thanks for your companionship when I wrote my thesis in coffeshops.

To Lorentius Agung Prasetya thanks for your help in proofreading my thesis and for designing my cover.

Special thanks to Ria Abdilla (my paranymph), Frita Yuliati (my paranymph), Martijn Santjes, Boy Arief Fachri, M. Yusuf Abdhu, Louis Daniel, Angela Kumalaputri for helping me during defense preparations.

Finally, I would also like to thank my parents, and my brother Hendra Subroto. You were always supporting me and encouraging me with your prayers. The last but not least, to my dearest Lucy, a loyal companion who always cheering up my life.