### SEED-BORNE MACROPHOMINA PHASEOLINA IN MUNGBEAN (VIGNA RADIATA) AND BLACKGRAM (VIGNA MUNGO): EFFECTS ON SEED QUALITIES AND ITS CONTROL

MD. SHAMSUR RAHMAN

# A THESIS SUBMITTED TO THE GRADUATE SCHOOL IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN AGRONOMY

GRADUATE SCHOOL
CHIANG MAI UNIVERSITY
JULY 2001

### SEED-BORNE MACROPHOMINA PHASEOLINA IN MUNGBEAN (VIGNA RADIATA) AND BLACKGRAM (VIGNA MUNGO): EFFECTS ON SEED QUALITIES AND ITS CONTROL

### MD. SHAMSUR RAHMAN

## THIS THESIS HAS BEEN APPROVED TO BE A PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN AGRONOMY

EXAMINING COMMITTEE	
Guela da Veerroni Sc	> CHAIRMAN
Dr. Suchada Vearasilp	
Saubat Stickey	MEMBER
Associate Professor Dr. Sombat Sric	chuwong
P. Jay	MEMBER
Associate Professor Dr. Pornchai Lu	eang-A-Papong
C Jali—	MEMBER
Assistant Professor Dr. Chaiwat Jati	satienr
(2)	MEMBER
Professor Dr. Ismail Hossain	

16 July 2001 © Copyright by the Graduate School, Chiang Mai University

### **ACKNOWLEDGEMENTS**

In the Name of Allah, the Almighty, Most Gracious, and Most Merciful, He Who Owns all Gratitudes and Praises.

Bangladesh Sugarcane Research Institute provided the opportunity and fund under Agricultural Research Management Project (ARMP) for pursuing this Ph.D. study. The support is gratefully acknowledged. I am extremely grateful to my advisor Dr. Suchada Vearasilp. Her great enthusiasm, knowledge and endless supply of ideas have been a constant source of inspiration, ever since I first met her. It was a great pleasure to me to conduct this thesis under her supervision. My deep gratitude to my co-advisor Dr. Sombat Srichuwong, whose insightful hints, stimulating suggestions and encouragement have helped me on numerous occasions throughout the study period. I am also indebted to the other committee members, Dr. Pornchai Lueang-Aggregation-Papong, Dr. Chaiwat Jatisatieur and Professor Dr. Ismail Hossain for their worthwhile advice and comments.

I would like to give my sincere thankfulness to Dr. Pittaya Sruamsiri, Dean of Agriculture faculty, for notable supports, inspirations and suggestions. I am also immensely grateful to several teachers and officers of Agriculture faculty, Chaing Mai University, who helped me in several ways during my stay in Chiang Mai, Thailand: Prof. Mr. Songchao Insomphum, Dr. Dumnern Karladee, Mr. Suthat Julsrigival, Dr. Chuckry Senthong, Dr. Attachai Jintrawet, Dr. Sakda Jongkaewwattana, Dr. Nuchanart Chonglaka, Dr. Vijcha Sahadsud, Mr. Natasak, Mr. Sa-nguansak, Ms. Nok and others. I am greatly indebted to Ms. Chitraporn Uttamo, head of Academic section, Graduate School, for her generous cooperation.

For ceaseless and tireless supports, encouragement, and invaluable suggestions, I am beholden to: Mr. A. H. M. Delwar Hossain, Director General, BSRI; Dr. Mafizur Rahman, Director (Research), BSRI; Dr. M. Abdul Awal, Director (TOT), BSRI and Dr. Sharifur Rahman, Head of Pathology Division, BSRI. I am thankful to Training & Technology Transfer (TTT) for their constant cooperation during my study period.

I wish to give my very special thanks to Mrs. Saranya Ounchanum, Secretary of Agronomy Department for extending enormous helps not only in official matters but also in personal aspects since my first arrival in Chaing Mai University. Thanks a lot to Mrs. Srbush Duangtawee for providing numerous assistance in my Agronomic laboratory works. I am also equally thankful to the other administrative staffs of Agronomy department: Mr. Prasit Chanthasit, Ms. Praprasri Choomanee, Ms. Rumpaipan Pichaingao, Mr. Chum Far-rungruang and Mr. Duangchan Wongchan, who extended their immense benevolent helps in various ways with smile which I will remember forever.

I am thankful to the cordial friendship, help and encouragement of Mr. Damrat Chatreewong (Ayub). His constant company never let me feel alone which is

unforgettable. His wife's kindness and hospitality deserve great appreciation. Ayub's three kids Alif, Aleda and Sharif provided me the flavor of homely environment in Chaing Mai. I am deeply indebted to my Nepalese friend and roommate Mr. Nityananda Khanal for his encouragement, help and invaluable suggestions in various aspects including my study.

Thanks are going to the graduate students of Plant Pathology department: Miss Nuchanat, Mr. Yodchai, Miss Oo and Miss Kao for helping me a lot in my laboratory works and providing friendship. I equally acknowledge the support and friendship of Agronomy graduate students: Miss Salita, Mr. Satith, Mr. Pairoj, Miss Bim, Miss Wanida, Miss Amm, Miss Dao, Miss Chanakarn, Mr. Mike and others, I wish to thank to Mr. Adun in Seed Science laboratory, Mr. Bunsri and Ms. Sonthaya in Plant Pathology laboratory. Without their constant help, it would be quite difficult to complete my experimental work in time. Special thanks to Miss Urat, Mr. Dan and Mr. Shamphan for providing friendship and enormous helps in various ways.

I am Thankful to Mr. Panomsak, Mr. Benz and Mr. Tong for helping in preparation of my thesis defense. I would like to thank to several of my friends at MCC for their unforgettable company: Mr. Chin, Mr. Sanun, Mr. Somkiat, Ms. Tania, Miss Aod, Miss Mao, Mr. Monthibut and others.

Thanks a lot to Brother Ismail for reading and editing the English of this thesis. Mrs. Ismail also deserves special thanks for providing friendships. Enormous thanks go to Professor Yunus and Mrs. Yunus along with their family members for giving me love and encouragement while I was quite bored. A very devoted and unique thank to Mr. Michael Fuhlbohm at Queensland University, Australia. Mr. Fuhlbohm helped me a lot by providing a number of important papers related to my work. I am sure, without these invaluable papers, I would have encountered difficulty to come to an end of this success.

My all brothers, sisters and other relatives have become the source of constant encouragement, support, love, and cheerfulness. In the day of my success, I would like to extend my gratefulness and deep appreciation to all of them.

Now I wish to give a very special thank you and all my love to my wife Sayeeda Khatun. Without her inspiration, emotional support and love I doubt that this thesis would ever have been completed.

Finally, it is my great pleasure to dedicate this thesis to Rokeya Rahman and Dr. Md. Azizur Rahman, who are my egg and sperm produces and whose love, encouragement, sacrifice and blessings let me arrive up to this level.

Dr. Md. Shamsur Rahman Chiang Mai, Thailand. July 16, 2001.