## Acknowledgement

First and foremost, I am thankful to his Almighty ALLAH's help to complete my thesis. It is a genuine pleasure to express my deep thanks to those who contributed to my thesis. I would like to express my deepest reverence to my advisor Dr. Nidal Qinna for his enthusiasm, valuable advice, immense knowledge, support, directions, and suggestions he provided me with. My sincere thanks go to Prof. Nasir Idkaidek for his logical way of thinking, his input and perspective which were of great value for this thesis. My thanks also go to Dr. Adnan Badwan and to everybody working at the Jordanian Pharmaceutical Manufacturing Company (JPM). My thanks also go to the examination committee for their valuable suggestions. I also would like to thank Mr. Mujtaba Badr and Hamza Al-Hroub for their assistance and help. Special thanks are owed to Mohammad Albayed's fine technical assistance, his invaluable help, and cooperation at the animal house. I am also grateful to my friend Mrs. Nehal Jaber for her friendly helpful attitude, cheerful and constant support and to my friend Ala' Murrar for her nice words.

Lastly but not least, I would like to thank my family. I cannot find words to express my gratitude toward the most special woman in my heart now and forever, for my mother who made it possible for me by her support, prayers, and special care. I owe a special debt of gratitude to my sister Dr. Heba, my father who encouraged me through this thesis and to my brothers for their infinite encouragement. I thank them all because they have believed in my ability and supported me throughout my study.