Dedication

To my dearest mother and father,
With a great debt of love and gratitude,
For all the wisdom, patience, ethics and morals,
You taught me, and for all the support, encouragement and love you gave me.
May God bless you and grant you, through me, the peace of mind, body and soul.
Acknowledgement

First and foremost, all praises and thanks are due to God almighty for giving me the strength to accomplish this task. Undoubtedly this thesis would not have been possible without God’s mercy. As an undergraduate student of chemistry and then as a graduate student, specializing in biotechnology, I came across two contrasting phrases viz., “chemistry is the root of all sciences” and “biotechnology boon for the sustainable world”. Since chemistry builds biomolecules that make life beautiful and viable, a Ph.D. in biology seemed a real fit as the next step. Luckily, my next step landed me in the laboratory of Dr. Rashna Bhandari.

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Finally, I will end with a quote from Abdul Rajam al-Bisani (1199)...

No one ever wrote a chapter without, on the following day, saying, ‘Had such-and-such been changed it would have been better; had such-and-such been added it would have been more acceptable; had such-and-such been stated earlier it would have been preferable; and had such-and-such been omitted it would have been more elegant’. Such a phenomenon is one of the great lessons and evidence of the inherent insufficiency of all the members of the human race.

Aushaq Bashir Malla