Present work on aromatic and heterocyclic compounds containing nitrogen mustard moiety was started with two objectives: to synthesise new compounds containing aromatic or heterocyclic moiety having one or two nitrogen mustard groups, attached directly or through the side chain to the parent ring system; and secondly, to utilize these compounds in the various pharmacological studies.

A large number of newly synthesised compounds have been screened for their anticancer, antimicrobial and anti-fertility activities and their results are recorded in this dissertation.

The structural assignments are supported by spectroscopic data. Infrared spectra of most of the compounds have been studied, whereas the N.M.R. spectra were run on mainly representative compounds.

I am deeply indebted to Dr. I. S. Gupta, Professor Organic Technology, under whose supervision this work has been carried out, for his keen interest, sagacious advice, noble suggestions and above all his paternal gesture which I received from him throughout the work.

I am grateful to Dr. B. Ghosh, Professor and Head, Department of Chemical Engineering and Technology, Panjab University, Chandigarh for providing the necessary
laboratory facilities and his constant encouragements.

I am also thankful to Dr. Harry B. Wood, Chief, Drug Development Branch, National Cancer Institute, N.I.H., Bethesda, Maryland, Dr. S. K. Garg, Dr. K. C. aggarwal, Mr. A. Verma and the authorities of the Post-graduate Institute of Medical Education and Research, Chandigarh and All India Medical Institute of Science and Research, New Delhi, for their kind co-operation in carrying out various pharmacological studies.

The author wishes to express his grateful thanks to Dr. Thorburn Burns and Dr. A. H. Norbury, Department of Chemistry, University of Technology, Loughborough, Leicestershire, England for determining N.M.R. spectra. Thanks are due to Mr. Ram Chand, Storekeeper and the other laboratory staff for their kind co-operation during the course of these studies.

In the end the author is thankful to Panjab University for financial support.

(Pritpal Singh)