

PREFACE

The thesis titled *Some Studies on the Hydrodynamics Characteristics in Tapered Bubble Column Using Non-Newtonian Liquids* is submitted herewith. Two different tapered columns with different tapered angle have been fabricated for experimentation. The present investigation has been carried out to study the hydrodynamics of tapered bubble columns using non-Newtonian liquids at stagnant phase and air as continuous phase. The effects of different operating variables such as gas flow rate, liquid height, taper angle, orifice diameter of sieve plate, etc. on gas holdup and frictional pressure drop have been investigated. Empirical correlations have been developed for the prediction of the gas holdup and frictional pressure drop. These correlations are of statistically acceptable. The Artificial Neural Network with multilayer perceptron (MPL) with one hidden layer and four different common transfer functions with backpropagation algorithm were used to demonstrate its applicability in the prediction of gas holdup and frictional pressure drop in the columns.