CHAPTER I
INTRODUCTION

Nowadays, world population is increase. The growth of population generally means increases of needs for living i.e. food, services and energy. As the consequences, there are increasing in industrial activities and transportation to serve the needs. These factors give a negative impact on the environment (pollution). Pollution Crisis is a major problem all around the world. It has directly affected to the millions of living things and especially caused many deaths and health. There are basically 3 types of pollution. They are air pollution, water pollution and land pollution. The most dangerous type is air pollution because it contributes to global warming. Carbon dioxide (CO_2), one of the greenhouse gases, is the main pollutant that is warming the Earth. It has global warming potential 23 times less than methane and 296 times less than nitrous oxide (http://www2.dmu.dk) but it is emitted very much higher percentage than the others.

At present, there are several technologies for capturing carbon dioxide emitted from industries, such as solvent absorption (solvent scrubbing), adsorption, membrane systems , cryogenic fractionation, etc. New alternative methods have been continuously developed by focusing on increasing capture efficiency and cost effectiveness. High internal phase emulsions (HIPEs) is one of interesting synthesis method to achieve high surface area and high porosity material for benefit of high carbon dioxide adsorption.

In this work, a high surface area material loaded with purified biopolymer adsorbent was studied using the high internal phase emulsion technique where the obtained adsorbent was applied in the area of CO_2 adsorption to investigate the performance of this adsorbent. Moreover, a purified biopolymer used in this work contained polyamines; the primary amines have the ability to react with CO_2.