CHAPTER I

INTRODUCTION

At the present, natural products are biological active and the studies of natural products are the investigation of their structures, formation, uses, and biological activities. Natural products and their derivatives are usually used in drugs and cosmetics. In nature, fungi are a very large and diverse group of organisms. Fungi have been found from various source such as soil, marine, fresh water, litter, dung and decaying remains of plants and animals. Since many species of fungi can produce biological active compounds, fungi are an interesting enormous source for natural products with diverse chemical structures and activities.

Mushrooms are classified in kingdom of fungi, some genus of mushrooms, for example, *Panaeolus*, *Psilocybe*, *Conocybe*, *Gymnopilus*, *Inocybe* and *Pluteus* have hallucinogenic properties (Stamets, 1996). Many species of mushrooms in genus *Psilocybe* were found throughout most of the world. These mushrooms have psychedelic effects. The ingestion of small amounts of these hallucinogenic mushrooms induces ecstasy. They have important hallucinogenic compounds, including psilocybin (or 4-phosphoryloxy-*N,N*-dimethyltriptamine) and psilocin (or 4-hydroxy-*N,N*-dimethyltryptamine) (Beug and Bigwood, 1981, Keller et al., 1999, "Albert Hofmann",1996). Psilocin and psilocybin interacts mainly with serotonin receptor (5-Hydroxy tryptamine receptor or 5-HT recepter). After the discovery of hallucinogenic compounds from these mushrooms there are many researchs about both chemicals from various species of hallucinogenic mushrooms.

Many species of hallucinogenic mushrooms such as *Psilocybe cubensis*, *Psilocybe subcubensis*, *Panaeolus* (*Copelandia*) *cyanescens*, and *Panaeolus antillarum* are world widely distribution including Thailand. *Psilocybe samuiensis* was first collected from Koh Samui, Thailand in 1991 by Allen (Allen, 1992, Guzmán et al., 1993).

In this research, *Psilocybe samuiensis* was analyzed for chemical constituents in order to obtain new chemotaxonomic compounds.

Therefore, the main objectives of this research are as follws:

1. To extract, isolate and purify the chemical constituents produced by *Psilocybe samuiensis* from broth and mycelia.
2. To elucidate the structure of the isolated compounds.