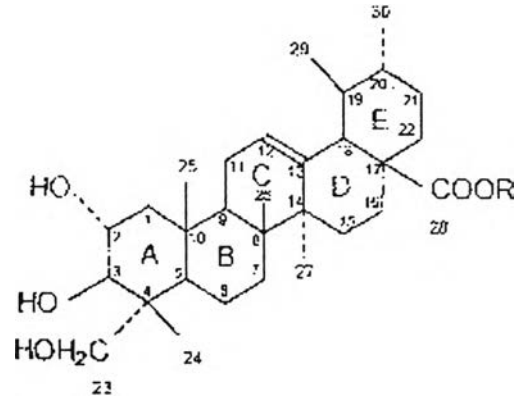
CHAPTER I

INTRODUCTION

Centella asiatica (Linn.)Urban (syn. *Hydrocotyle asiatica* Linn.) ,belonging to the family Umbelliferae(Apiaceae), is tropical weed, found especially in wet places of tropical and subtropical region. It is a medicinal plant that has been employed since prehistoric times. The therapeutic use of this herbal remedy with its wide range of applications has been well documented in South East Asia and India for centuries (Brinkhaus, 2000).

The active constituents of *Centella asiatica* extracts include pentacyclic triterpene devivatine such as asiaticoside , madecassoside, asiatic acid , madecassic acid, terminolic acid. The major substance of this extract is asiaticoside which contained about 40 % of titrated extract of *Centella asiatica* (TECA) (Brinkhaus, 2000; Pramongkit, 1995).



R = glc – glc – rham

Figure 1 Strcture of asiaticoside (Arunya,1997)

The pharmaceutical preparations based on *Centella asiatica* are available as ointment, injectable solution, powder, tablet for wound healing which has been widely used in Europe for example Madecassol®, Centellase®. Bonte F et.al (1995) found that asiaticoside increased collagen type I which plays an important role in wound healing.

Preformulation is a branch of the pharmaceutical sciences that applies to work on a compound which is considered for product development and marketing by the company, which can be either an inovator or generic company (Carstensen,1998). In Thailand, the opportunity to study new drug substance is limited, most of the preformulaiton works is considered to be generic approach, working on an already existing drug after the time of patent expiry to marketting.

Solid state characterization is one part of pharmaceutical preformulation beacause many pharmaceutical solid can exist in several internal structure such as polymorph, solvate, hydrate and amorphous. Such forms may present different physicochemical properties that could affect quality of pharmaceutical product. The internal structure alteration of solid may affect solubility, compaction, solid state stability and bioavailability (Griesser , Burger , Mereiter, 1997; Liggin ,Hunter and Burt, 1997; Kimura, Hirayama and Uekama, 1999; Sun and Grant, 2001; Zhang et al, 2002; Schinzer et al ,2002). Solid substances display unpredictable varity of solid state properties. Therefore, understanding of solid state properties of each substance is very improtant for drug formulation and processing design.

The aim of this research as follow:

1. To study solid state characterization of recrystallized asiaticoside from various solvent
2. To study physicochemical properties of recrystallized asiaticoside from various solvent
3. To study solid state stability of recrystallized asiaticoside from various solvent
4. To study solid state incompatibility and chemical incompatibility of asiaticoside with selected excipients