CHAPTER 1

INTRODUCTION

In the recent era, many consumers are attracted with a lot of health food and the related products. Especially, the way of natural health solution compensated the chemical reagent and tablets. The natural products have gained a high demand by consumer such as herbs, healthy foods and drinks. Thailand located in the tropical climate that is said to be rich in biodiversity. Various species of Thai herbs have been proved in their high effectiveness treating for various diseases.

Plant polysaccharides are widely used in food technology for various purposes such as thickeners, stabilizers and gelling agents. The gelling components in Moo-noi can be utilized and classified as another source of natural polysaccharides. Moo-noi, is classified in the Menispermaceae family, Cissampelos genus and *Pareira* species. There are many common names in Thailand such as Moo-noi, Krueo Ma noy and Krung-ka-mao. It is a woody climbing vine plant. The plant is found throughout in the tropical regions of Asia, East Africa, and South America (Smitinand & Larsen, 1991). This plant is widely distributed in the northern and northeast of Thailand. Moo-noi is commonly referred to as a medicinal herb by indigenous people due to their analgesic properties and they have been use for many years for treating a variety of ailments such as asthma, dysentery, diuretic and traumatic pain (Mukerji & Bhandari, 1959). In food application, due to the gel formation property of Moo-noi leaves, it has been utilized in food such as desert and also eaten as fresh vegetable. It is interesting to note that the formation of the gel occurs in a very short period of time after water extraction of the leaf. Singthong *et al*. (2004) reported that

the polysaccharide responsible for gelation of Moo-noi extract is a pectin related compounds.

Pectin is considered a soluble dietary fiber and exerts physiological effects on the gastrointestinal tract such as delayed gastric emptying (Schwartz *et al.* 1982; Flourine *et al.* 1985), reduced transit time and reduced glucose absorption (Spiller *et al*. 1980). These effects are mainly due to its gel forming and water holding capacity (Roberfroid, 1993). Other actions that have been attributed to the ingestion of pectin are interaction with medicines and interaction with the intestinal metabolism of ions (Seyrig *et al*. 1983). In the food industry, pectin is an important gelling agent and thickener. Like other dietary fibres, pectin reaches intact the large intestine (Englyst and Cummings, 1987) where it is extensively fermented by the gut microflora, although it has never been reported to be prebiotic. Pectic oligosaccharides (POS) were evaluated for their prebiotic properties (Olano-Martin *et al*., 2002). These pectic oligosaccharides had a low prebiotic potential compared to fructo-oligosaccharides (FOS), although they were more selectively fermented than were the parent pectins (Olano-Martin *et al*., 2002).

There are a few papers that reported on polysaccharides found in Moo-noi. To gain more variety of knowledge about this plant, the preparation of gel extract, some chemical properties and the biological active property as prebiotic of these polysaccharides will be investigated, which may be useful for the application in food and pharmaceutical fields.

Objectives

1. Study on preparation and sugar composition of polysaccharides extracted from Moo-noi leaves.
2. Study on prebiotic properties of Moo-noi polysaccharides and enzymatic derived oligosaccharides.