CHAPTER I
INTRODUCTION

1.1 Basic and reasons

Cholangiocarcinoma (CCA) is a rare malignant tumor that arised from bile duct epithelium, founded with higher incidence in Eastern and Southeast Asia (Patel, 2001). It was reported globally as 15% of all primary liver cancers and 3% of all gastrointestinal cancers. The northeast of Thailand, especially Khon Kaen, has the highest incidence of CCA with 96 cases per 100,000 people (Shaib and El-Serag, 2004).

There are many reported concerning serum CCA associated markers, however, only three markers: CA 19-9, CA 125 and CEA, are commonly used for the diagnosis. Among these, CA 19-9 has the highest sensitivity and specificity for 89% and 86% respectively (Lim and Park, 2004; Nichols et al., 1993). However, there are still need for new tumor associated markers to improve both specificity and sensitivity for diagnosis of CCA. Combination of markers is also gained more attention since it is believed to increase specificity and sensitivity of clinical diagnosis.

Serum is one of the most useful specimen for elucidated the biomarkers (Ardekani et al., 2002). Because serum always perfuses tissues, it may be determined the presence of disease by measuring the altered of the composing molecular species in serum (Grossklaus et al., 2002). It also presented many beneficial property for proteomic exploration because it has a high protein content, about 60-80 mg/mL that secreted and eliminated from cells and tissues (Kennedy, 2002; Sasaki et al., 2002).

The aim of this study is to determine a set of serum protein markers that are associated with CCA by comparing proteomic patterns of pre- and post-operative sera from CCA patients with those of healthy persons by two-dimensional electrophoresis (2-DE).

1.2 Aim of the thesis

To explore the 2D patterns of pre- and post-operative sera from CCA patients.

1.3 Scope of the study

In this study, serum protein of 6 CCA patients (pre- and post-operative serum) and 10 healthy persons were analyzed using 2-DE technique (Isoelectric focusing (IEF) is used as first dimension and sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-PAGE) as second dimension. Colloidal coomassie staining based on the method of Neuhoff (Neuhoff et al., 1988) and silver staining based on the method of Heukeshoven and Dernick (Heukeshoven and Dernick, 1988) were used for visualization and 2-DE patterns were analyzed using 2-DE software (GE Healthcare)

1.4 Anticipated outcomes

(1) 2D pattern of pre- and post-operative serum protein of CCA patients

(2) Representative serum protein biomarkers that associated with CCA