CHAPTER I

INTRODUCTION

1. Background and significance of the study

In today's world most deaths are attributable to noncommunicable diseases and more than half of these are the result of cardiovascular diseases (CVDs). In some developing countries, CVDs have become the first or second leading causes, responsible for one-third of all deaths (Public Health, 2006). Overall, in developing countries, CVDs ranked the third in disease burden (following injuries and neuropsychiatric disorders). More than 12 million people in the United States were estimated to have coronary heart disease (CHD) and about 960,000 died from this disease (Ford et al., 2003). In Thailand, death rates per 100,000 populations caused by ischemic heart disease were continuously increased accounting for 3.35, 7.34, 9.60, 12.13 and 13.69 in 1998, 1999, 2000, 2001 and 2002 respectively (Public Health, 2004).

An elevation in serum cholesterol contributes to initiation and progression of coronary atherosclerosis. Hypercholesterolemia, high cholesterol levels particularly low-density lipoprotein cholesterol (LDL cholesterol), promotes atherogenesis and increases the risk of CHD and ischemic heart disease (Grundy, 1999; Mann, 2000). Thus, understanding, awareness, treatment, and control of hypercholesterolemia can reduce the risk of hypercholesterolemia or morbidity and mortality of CHD (Jacobson, 2001). Analysis of the National Health and Nutrition Examination Survey 1999 to 2000 data suggested that renewed efforts are necessary to lower total cholesterol concentrations in the US population. These efforts should include aggressive

promotion of heart-healthy lifestyles to prevent and control hypercholesterolemia (Ford et al., 2003).

National Cholesterol Education Program Adult Treatment Panel III (NCEP ATP III) continues to identify elevated LDL cholesterol as the primary target of cholesterol-lowering therapy. First-line therapy is therapeutic lifestyle changes (TLC) including diet therapy, weight reduction and increasing physical activity. Dietary factors can be modified to reduce risk of CVD (Piper, 1996) because they are the causative or protective factors of hypercholesterolemia. More commonly, cholesterol disorders are generally dietary in origin. Dietary modification is always thought of as the first approach to reduce cholesterol levels. Increasing intake of dietary fiber was recommended as safe and practical approaches for modest cholesterol reduction (Freiburger, 2001). It was found that a low-fat diet in conjunction with a viscous fiber intake could reduce cholesterol level beyond the levels associated with a low-fat diet alone (Jenkins et al., 1999; Jalili et al., 2000). NCEP and American Heart Association (AHA) guidelines recommended increasing consumption of dietary fiber riched-diets. *Ocimum canum* seeds are good source of dietary fiber and cheap. They have a variety of beneficial physiological effects such as cholesterol lowering effect, laxative effect and blood glucose lowering effect (Leelahagul et al., 1992; Farnsworth and Bunyapraphatsara, 1992).

Nowadays nutrition counseling is routinely considered as part of the treatment regimen for patients with hypercholesterolemia. It is cost-effective, well tolerated, and safe. Furthermore, an increase in dietary fiber intake by supplementation of *O. canum* seeds may promote the reduction of serum cholesterol levels.

2. Objectives of the study

The specific objectives of the present study were as follow:

1. To evaluate the effect of nutrition counseling on serum lipid levels
2. To evaluate the effect of nutrition counseling with *O. canum* seed supplementation on serum lipid levels

3. Benefits of the study

1. This study provides the information about the effect of nutrition counseling and nutrition counseling with *O. canum* seed supplementation on serum lipid levels.
2. This study promotes the role of pharmacist on nutrition counseling.
3. This study obtains direction for dietary advice in hypercholesterolemic patients.