UNIVERSITI TEKNOLOGI MARA

CHOLESTEROL-REDUCING ACTIVITY OF LACTIC ACID BACTERIA

ZUHAILAH MOHD SHAFAWI

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ABSTRACT

Two strains of lactic acid bacteria (LAB) were analysed for their ability to produce BSH enzyme and to remove cholesterol from growth media. A plate assay method was conducted to screen the ability of the LAB to produce BSH enzyme, and *o*-phthalaldehyde method was carried out to determine their ability to reduce cholesterol *in vitro*. It was found that *Lactobacillus plantarum* L5 and *Lactobacillus casei* strain Shirota were able to produce BSH enzyme and reduce up to 54 percent of cholesterol from growth media. There were no significant differences in the ability of both strains to reduce cholesterol levels *in vitro* ($P < 0.05$).

Keywords: lactic acid bacteria, BSH enzyme, cholesterol reduction, *in vitro*

CHAPTER 1

INTRODUCTION

1.1 Introduction

Coronary heart diseases (CHD), cerebrovascular diseases, and peripheral vascular diseases are the third leading cause of morbidity and number one leading cause of mortality in the world in the turn of the twenty-first century (WHO, 2004). One of the major causes of these diseases is hypercholesterolemia (Mahley & Bersot, 2002).

Although pharmacological agents are available to manage hypercholesterolemia, concerns over the risk of serious adverse effects associated with these agents have increased the public interests towards the use of non-pharmacological approaches as a preventive and supportive therapy for hypercholesterolemia. One of the non-pharmacological approaches is using functional foods. Functional foods are broadly defined as foods that provide additional physiological benefits to the consumer beyond simple nutrition. One of the functional foods that have been reported to lower blood cholesterol levels is probiotics (Jones, 2002).