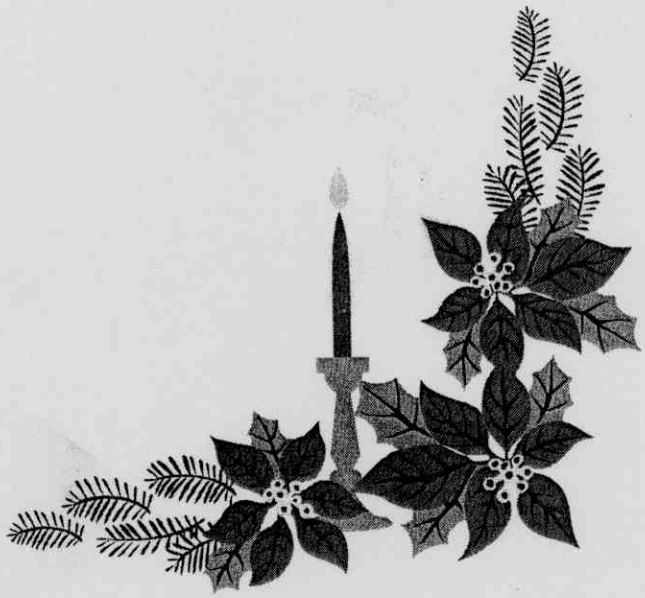
INTRODUCTION



1. INTRODUCTION

In Egypt, the total yield of bread grains does not satisfy the needs of the country. The total production of wheat grain cover only about 50-60% of the total needs.

Barley is the most widely adapted of the world's cereals. History indicates that barley has been cultivated longer than any other cereal grain and was used mostly for food. As the advantages of using wheat for bread were discovered and as wheat become more available, it replaced barley as the preferred grain for bread. Barley has the capacity to suppress hepatic enzyme reductase activity and to decrease serum cholesterol due to tocotrienols **(Chaudhary and Kandweber, 1990; Ikegami *et al.*, 1996; Kahlon and Chow, 1997; Hecker *et al.*, 1998 and Kahlon *et al.*, 1999)**.

Increased yield of rice and the corresponding increase in it's availability have also contributed to barley's decline as a food **(Henery and Kettlewell, 1996)**.

Soyprotein are considered to be nearly comparable to animal proteins in their nutritive value except for a relative deficiency in some amino acids **(Kappor and Gupta, 1977)**. In addition soybeans have high quality protein, which means that the amino acid content is good for meeting the essential amino acid requirements of animals. The limiting amino acid in soyprotein is methionine, or more generally the sulfur-containing amino acids. Hence, soyprotein is complementary to cereal protein in which lysine generally is the limiting amino acid.

Numerous investigators reported the chemical composition, amino acids content and nutritive value of soybean **(Pellet and Shodarvian, 1970; Wolf, 1977; Sikka *et al.*, 1978 and Bakr, 1997)**. In bakery products, soy flour is used as a bleaching agent and to improve flavor and toasting characteristics. It also extends shelf life by helping retain moisture. In addition, the soy flour improve dough handling characteristics **(Walter and Samuel, 1983)**. Thus supplementation of wheat flour with either barley and or defatted soybean flour may contribute in narrowing the gap between national production and consumption of wheat bread. Meantime, such supplementation could improve nutritional quality of bread.

Therefore, the present study was carried out to:

1- Study the effect of supplementation of wheat flour (82% extraction) with hull-less barley flour (70% extraction) and/or defatted soybean flour at different ratios for fortification and preparing balady bread.

2- Evaluation the chemical and rheological properties and baking quality of the produced bread.

3- Evaluation the prophylactic effect of wheat flour (82% extraction) supplemented with hull-less barley flour (70% extraction) and or defatted soybean flour as hypolipidemic agent on rats received hypercholesterolemic diet.