

1. INTRODUCTION

This work is interested with some by-products from rice and barley cereals. Study included chemical and biological evaluation of such by-products were carried out.

Rice is the world's largest staple crop. World production of rough rice or paddy is on the order of 420 million metric tons per year (**Daniel *et al.*, 1991**). Most of this rice is consumed as white rice with the hull and removing the bran layer. The bran makes up about 10 percent of the rough rice weight and is rich in protein, lipids, vitamins, and trace minerals. In many countries, bran is considered as by-product that must be disposed of sold as animal feed. It is, however, an important source of high quality cooking oil and is in great abundance; since rice bran has a high oil content of 15 to 22%, depending on the milling procedures and hull contamination, enzymes, which are naturally present or are the result of microbiological activity, hydrolyze the oil and cause rancidity accompanied with better and soapy taste (**Martin *et al.*, 1993**).

Cereal brans are considered desirable for human consumption due to its health benefits. Extensive research reviewed by **Kahlon and Chow (1997)** has shown that incorporating rice bran in the diet results in plasma and liver cholesterol reductions that lower the risk of cardiovascular disease.

The bran, which is an important by-product, obtained during rice milling amounted to 10% of weight of rice grain. It is rich in protein (13-16%), and oil (15-22%) (**Daniel *et al.*, 1991**).

Barley is one of the earliest cultivated cereal grains in the world. It is gaining interest for food use due to its desirable nutritional and functional characteristics. β -glucan content has become one of the main parameters for the evaluation of barley, which increase the value of barley, since it appears to reduce serum cholesterol (**Baurdon *et al.*, 1999**).

Barley wastes includes; taflah "spent grain", husks and radicle "rootlets". All wastes were proved valuable except husks, as the Egyptian Beer Company sells taflah and radicle while solid waste of barley husks have no market value and they even create an environmental and disposal problem due to:

- 1- Their huge amount which increases steadily year after year.
- 2- Economically, these wastes are a load as they need to be transported for disposal outside the company.

However, for the production of beer and malt during the years (1991-1996) the quantities of different wastes such as, husks, taflah and radicle were increasables, it is found that the highest amount of wastes was taflah (9850-12500 ton/year), while the lowest amount was radicle "rootlets" (985-2000 ton/year). Tafalh and radicle are used directly without any treatment as animal feed because of the high content of protein. In Egypt about 20 thousand feddans are cultivated with Barley (**Anon, 1997**).

Aims of investigation:

The present study was carried out to:

1. Determination of chemical composition of rice bran and barley radicle.
2. Studying the effect of addition of rice bran and radicle on rheological properties of dough and sensory evaluation of products.
3. Studying the effect of rice bran, radicle as additives to the biscuits that on lipid profile, liver function and kidneys function of hypercholesterolemic rats, and also on lipid profile, liver function and kidneys function of hyperglycemic rats.

