INTRODUCTION AND AIM OF WORK

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Rodents are considered as one of the most important pest groups in Egypt. They cause great economic losses to growing and stored crops, poultry and animal farms, food manufactories as well as structure and fabric of buildings. Also, they grow through almost any object to obtain food and shelter. In addition, rodents are involved in the transmission and dissemination of many parasites and diseases to man and his domestic animals (**Meehan, 1984**).

Anticoagulant rodenticides have been used in the controlling of rodents in Egypt and allover the world. The anticoagulant rodenticides follow two main chemical groups "hydroxyl-comarin" and "indandion" derivatives. The mode of action of all anticoagulant rodenticides is preventing the normal mechanism of controlling blood clotting rendering blood incapable of coagulation and thus causing death as a result of internal haemorrhage (**Derse, 1963**).

Park and Leck, (1982) and Jeffrey *et al.* (1990) reported that the effect of coumarine anticoagulants induce vitamin K deficiency by inhibiting the regeneration of vitamin K and therapy inhibiting the formation of clotting factors II, VII, IX and X. Also, **Watts *et al*. (1996)** reported that the effect of the anticoagulant compounds results in a failure of carboxylation due to vitamin K deficiency because of the λ-carboxyglutamate deficiency. There is a decrease in urinary λ-carboxyglutamic acid content.

It has been previously reported that the anticoagulant affects most of the metabolic activities and promotes the oxidation processes causing destruction of the major chemical component of the cells like proteins and lipids. So, oxidative stress may occur as a result of increased free radical generation, decreased levels of antioxidants and/or impaired regeneration of reduced forms of antioxidants (**Thorpe and Baynass, 1999**).

Antioxidative enzymes play important roles in eliminating free radicals, preventing lipid per-oxidation in tissues **(Tribe *et al.* 1998**). In addition, uses of anticoagulant as rodenticides have been shown to induce various types of

toxicities both in animals (**Van Sumere and Teuchy, 1971**) and in man (**Schilling *et al*., 1969**).

The significant changes in the activities of the enzymatic system after treatment with some pesticides insure that there are injuries in the liver function and some biochemical and haematological parameters **(El-Essely, 2002 and Moussa, 2005).**

The physiological effect of chlorophacinone and brodifacoum on rodents were previously investigated separately by many authors. Therefore the present study aim to evaluate the physiological effect of mixture of them which will shed the light on this mixture and either it is more or less benefit than each rodenticide separately. The items of this study included the physiological effects of anticoagulant rodenticides chlorophacinone, brodifacoum and mixture of them on haematological parameters i.e. red blood corpuscles count (RBCs), white blood corpuscles count (WBCs), haemoglobin content, (Hb), and haematocrite value (Hct); respiratory functions of blood i.e. blood gases, acid base statues and oxygen equilibrium curve (OEC); biochemical parameters i.e. plasma aspartate amino transferase (AST), plasma alanine amino transferase (ALT), plasma total bilirubin, vitamin K epoxide reductase in liver microsomes, plasma total protein, plasma total lipid, blood glucose; antioxidant enzymes plasma total glutathione, plasma glutathione-s-transferase and plasma catalase and the hormone insulin like growth factor 1 (IGF-1) of the male albino rats; *Rattus norvegicus*.