

## INTRODUCTION

The world production of fats and oils has been increased during the period 1971 - 1981 by 35%, while the total world production of rapeseed has increased by 93% during the same period and reached 9,636,000 tonnes in 1981 (Pigden, 1983). Brassica oil seed crops annually occupy over eleven million hectares of world's agricultural levels and provide over 8% of the world's edible vegetable oil (Downey, 1983).

The ability of rapeseed to grow in harsh environments under a wide range of temperature and moisture conditions will enable rape production in the future to expand in many areas unsuited to other oil seed crops.

Old varieties rapeseeds contained high erucic acid more than 5% and had also high glucosinolate compounds level (Daun, 1986).

Several investigators mentioned that erucic acid poorly metabolized and consequently fats could be accumulated in heart muscle, besides some fatty materials could be deposits in the adrenal gland and ovarian tissues leading to some serious troubles on human life (Kramer et al., 1983). However, enzymatic hydrolysis of glucosinolate compounds in rapeseed meal yielded undesirable and toxic materials which limits its usefulness as an animal foodstuff (El-Nockrashy et al., 1977).

The modern rapeseed varieties known as canola contain

low level of both erucic acid and glucosinolate. The average level of erucic acid in candian rapeseed has been reduced to about 1% in recent year (Boulter, 1983).

Low erucic acid rapeseed oil is being used for cooking and other uses of edible oil. While, there is still a market for high erucic rapeseed oil to be only used industrially (Daun, 1986). Low glucosinolate canola meal with an amino acids profile equal in quality to soybean meal is a suitable protein source for livestock and protein concentrates developed canola

In Egypt, there is a great shortage in edible oils and large amounts are annually imported to cover the shortage in the local consumption market. Rapeseed has introduced to Egypt as a cheap source for edible oil with low erucic acid varieties. These samples were cultivated and experimented under Egyptian environmental conditions. However, up to now, the use of rapeseed oil for human consumption in Egypt has not been yet confirmed.

The present investigation was designed to study the possibility of using different safe doses of  $\gamma$ -ray, (up to 10 KGY), humid and dry heat treatments and various soaking treatments for inhibition myrosinase enzyme activity and edestroying or minimizing glucosinolate compounds of rapeseed and to study their effects on both oil and residual meal of rapeseed.