

**NUTRITIVE VALUE OF SOME ENERGY AND
PROTEIN BY-PRODUCTS
FOR FEEDING RABBITS**

BY

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A thesis submitted in partial fulfillment
of
the requirement for the degree of

MASTER OF SCIENCE

IN

**Agriculture Sciences
(Poultry Nutrition)**

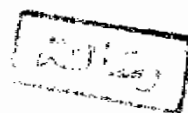
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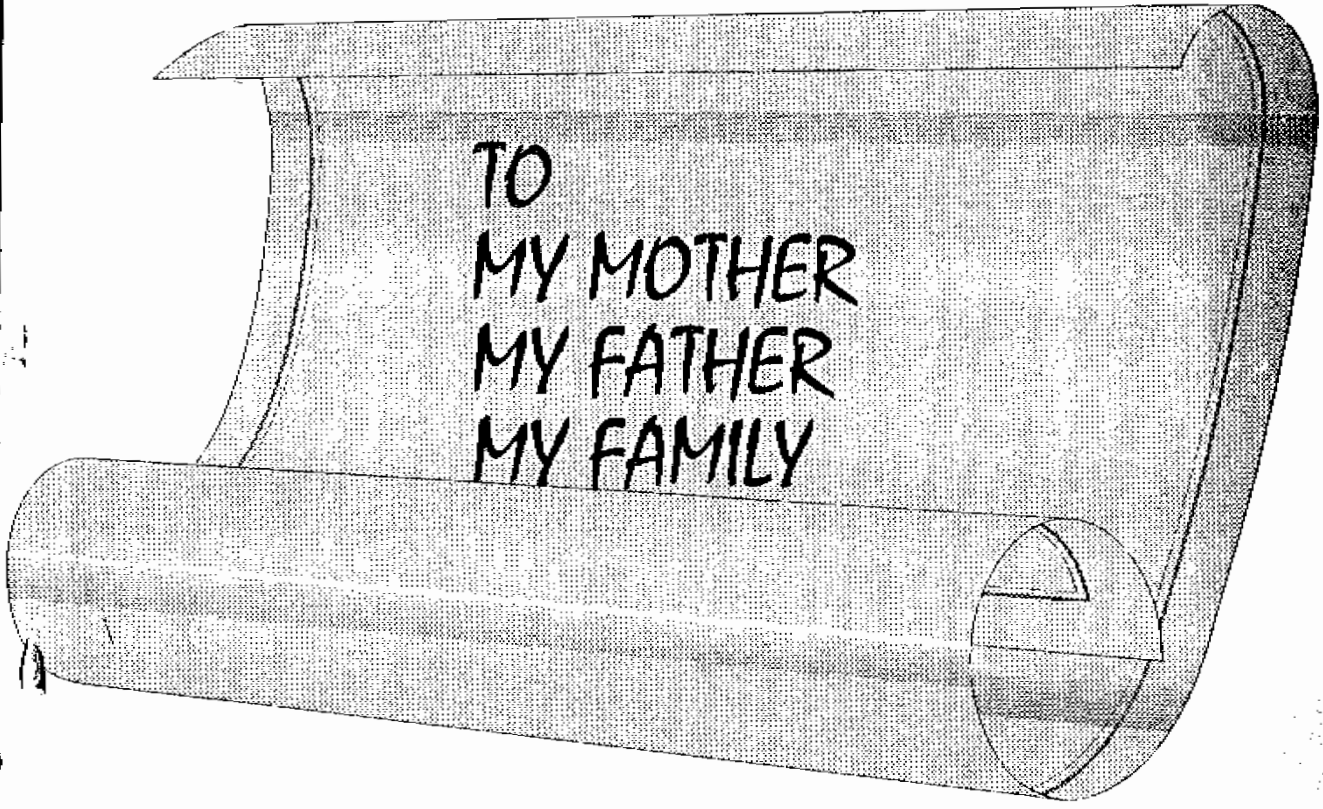
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A 3D rendering of a rolled-up scroll, shown from a perspective view. The scroll is unrolled on the left side, revealing text written in a bold, hand-drawn, sans-serif font. The scroll itself is a light gray color with a subtle texture. The text is centered on the unrolled portion. The right end of the scroll is rolled up into a circular shape, with a small, dark, semi-circular object (possibly a clasp or a piece of tape) visible on the outer edge of the roll.

TO
MY MOTHER
MY FATHER
MY FAMILY

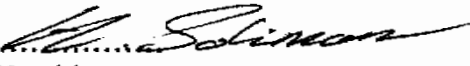


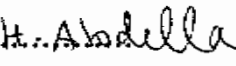
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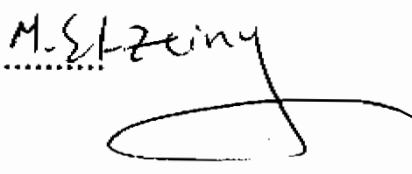
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ABSTRACT

The present study was designed to estimate the effect of using two different sources by - products of protein; as decorticated cottonseed meal (DCSM); corn gluten meal (CGM); and two different sources by - products of energy as broken macaroni(pasta), broken wheat to replace 50% or 100% of the dietary protein soybean meal and energy yellow corn respectively, on the performance of growing rabbits.

Key Words:

Decorticated cottonseed meal (DCSM) and corn
gluten meal (CGM) versus soybean meal, broken
wheat, broken pasta versus yellow corn (YC),
feeding rabbits, body performance, digestibility.
trials, carcass characteristics.

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LIST OF ABBREVIATIONS

<i>ADE</i>	<i>Acid Detergent Fiber.</i>
<i>A.O.A.C</i>	<i>Association of Official Agriculture Chemists.</i>
<i>BM</i>	<i>Broken Macaroni (Pasta).</i>
<i>B.V</i>	<i>Biological value.</i>
<i>BW</i>	<i>Broken Wheat.</i>
<i>B.Wt</i>	<i>Body weight</i>
<i>C.F</i>	<i>Crude Fiber.</i>
<i>C.P</i>	<i>Crude Protein.</i>
<i>Cal</i>	<i>California.</i>
<i>CGF</i>	<i>Corn gluten feed.</i>
<i>CGM</i>	<i>Corn gluten meal.</i>
<i>CSM</i>	<i>Cotton seed meal.</i>
<i>DDGS</i>	<i>Dry Distillers Grain and Solubles.</i>
<i>DM</i>	<i>Dry Matter.</i>
<i>DP</i>	<i>Digestible Protein.</i>
<i>EE</i>	<i>Ether Extract.</i>
<i>FCR</i>	<i>Feed Conversion Ratio.</i>
<i>GC</i>	<i>Ground Cake.</i>
<i>NFE</i>	<i>Nitrogen Free Extract.</i>
<i>NPU</i>	<i>Net Protein Utilization.</i>
<i>NRC</i>	<i>National Research Council.</i>
<i>NZW</i>	<i>New Zealand White.</i>
<i>OM</i>	<i>Organic Matter.</i>
<i>SBM</i>	<i>Soybean meal.</i>
<i>SC</i>	<i>Sesame Cake.</i>
<i>TPE</i>	<i>Total Protein Efficiency.</i>
<i>WP</i>	<i>Wheat Bran.</i>
<i>YC</i>	<i>Yellow Corn.</i>

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INTRODUCTION

INTRODUCTION

Corn is mainly used in the poultry and rabbit diets as a source of energy whereas, soybean meal is mainly used as a source of protein. Their prices have increased sharply in the Egyptian market in the last few years depend upon their prices in the world market. Therefore, there is an urgent need to search for alternative ingredients which could be used as cheap sources of energy and protein to partially or fully replace corn and soybean meal in the poultry and rabbit diets.

Macaroni by-products are produced during the processing of macaroni, spaghetti and pasta. They are, however, unsuitable for human consumption according to *The Egyptian organization for standardization (1970)*. Macaroni by-product is generally high in carbohydrate content and thus could be used as an excellent source of energy. Wheat is not usually fed to animals because of its high price; however, unmarketable broken grain may be used for all classes of live stock up to 50%. However, the alternative locally produced meal such as decorticated cotton seed meal (CSM) and Corn gluten meal (CGM) could be used as a source of protein to replace the soybean meal in poultry and rabbit diets. The objectives of this study were to evaluate the nutritive value of these alternative sources of energy (broken macaroni and broken wheat) and proteins (local decorticated cotton seed meal, DCSM and corn gluten meal, CGM) as possible substitutes in diets for rabbits. Digestibility coefficients were determined for the experimental diets. Carcass characteristics were also measured.