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BIOCHEMICAL AND NUTRITIONAL STUDIES ON VITAMIN A AND CALCIUM SUPPLEMENTATION

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THESIS

Submitted in partial Fulfillment of the Requirement for the Degree of

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IN

Agricultural Biochemistry

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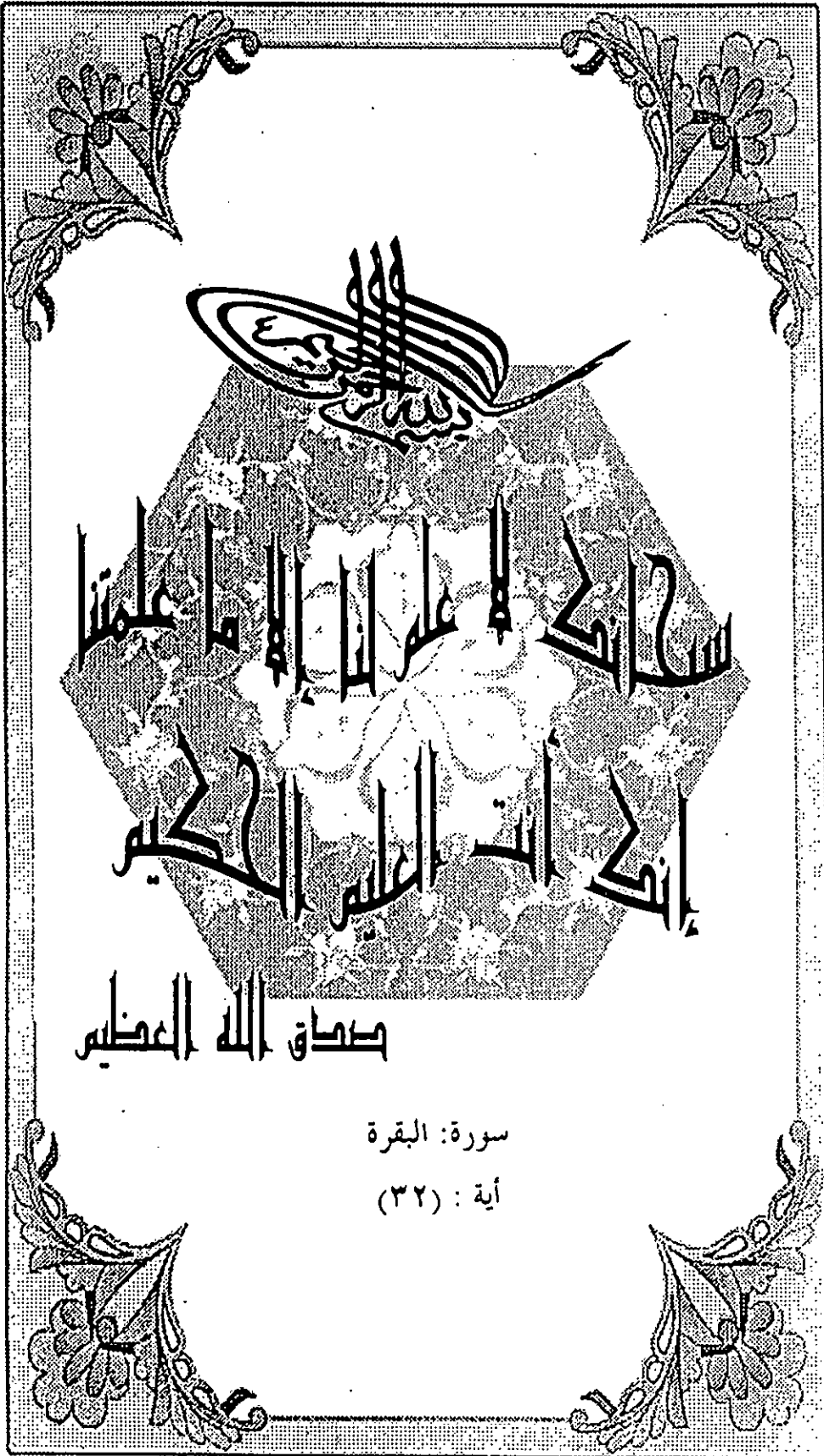
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ABSTRACT

Because of the importance of vitamin A and calcium in the metabolic pathway two separate experiments were designed in order to evaluate the nutrition intervention as food therapy for vitamin A or Ca deficiency. Carrot and yellow corn were used as a source of β -carotene while calcium carbonate and calcium sulfate were used as source of calcium for fortifying balady bread, pan bread, cake. The materials were subjected, to sensory evaluation and biological evaluation of supplemented bakery products.

Storage of supplemented bakery products (by dried carrot or yellow corn) under freezing resulted in a best control for β -carotene stability followed by refrigeration compared with storage under room temperature. The baking process slightly affected β -carotene content. Sensory evaluation of bakery products supplemented with 6.95 % dried carrot, 20% yellow corn 1% carbonate calcium and 0.6% calcium sulfate showed no significant changes compared with control.

Biological evaluation of bakery products supplemented with 8.71% dried carrot or 20% yellow corn showed a significant decrease in the serum total protein, albumin, globulin, except that animal feeding on cake supplemented with dried carrot. Meanwhile total bilirubin, serum glucose showed non significant differences compared with normal, negative control and supplemented bakery products.

Serum vitamin A revealed the following descending order: normal control > cake supplement with carrot > cake supplemented with yellow corn > pan bread supplemented with carrot > pan bread supplemented with yellow corn > balady bread supplemented with carrot > balady bread supplemented with yellow corn. This trend was found in liver vitamin A.

The biological evaluation of bakery products supplemented with 0.6 % calcium carbonate or 0.6 % calcium sulfate revealed that daily weight gain, food efficiency, tibia weight, ash, serum calcium, calcium absorption showed non significant differences when compared with normal control.

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