BIOCHEMICAL STUDIES ON SOME GAMMA IRRADIATED VEGETABLE SEEDS DURING SEEDLING STAGE

By

SOMAYA ZAKARIA ABO BAKER

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APPROVAL SHEET

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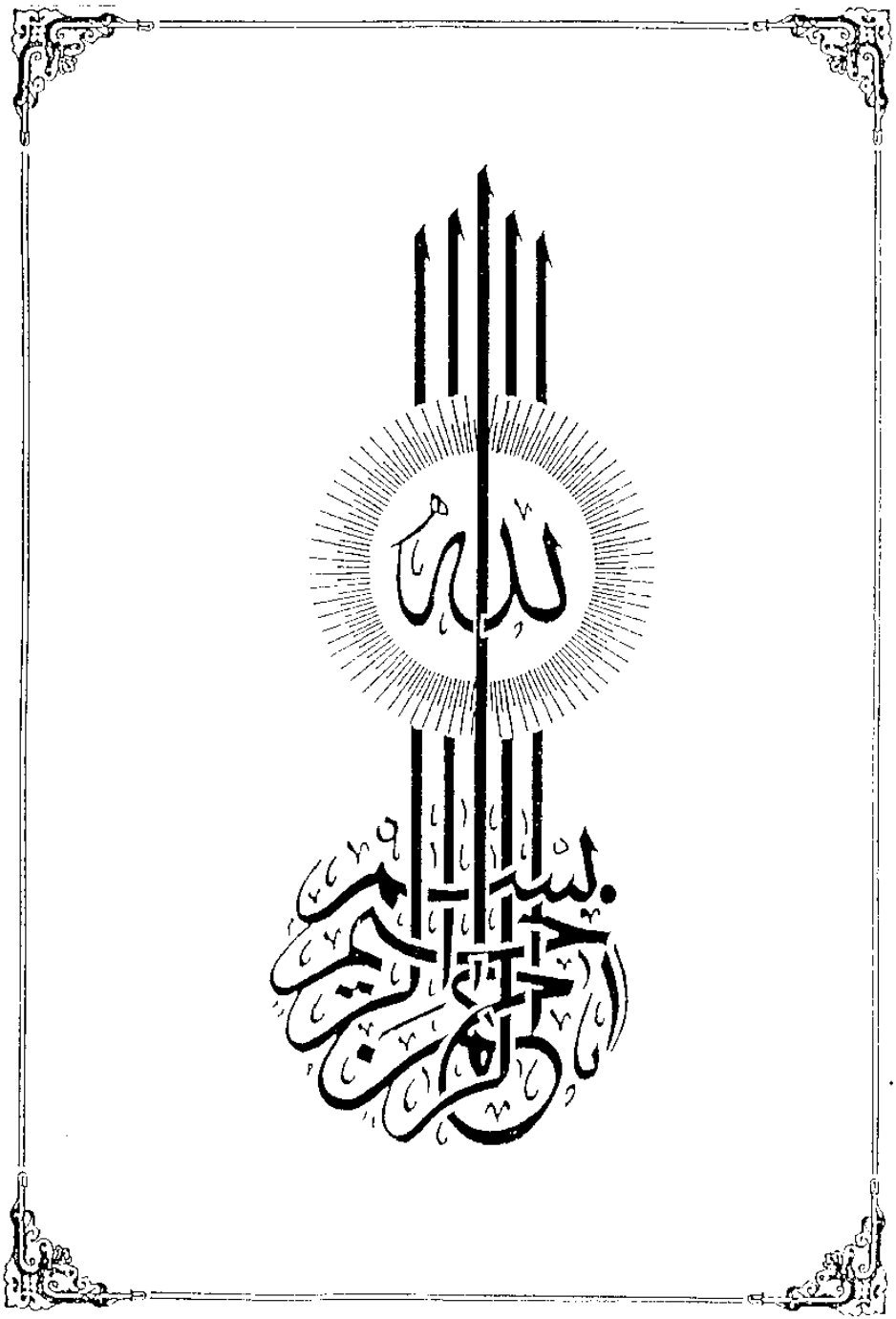

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ABSTRACT

Gamma irradiation (0,10, 20 and 30 Gy) of *Cucumber bita alpha* (var I and var II) and *Cucurbita pepo* var I and II) induced an increase in indole acetic acid oxidase, acid phosphatase, and peroxidase activities, and a marked decline in the activity of phenylalanine ammonia lyase (PAL) of seedlings.

The soluble protein content decreased with age in both varieties of each species and increased with gamma irridation treatments.

Total soluble carbohydrates, and reducing sugars of cucumber and cucurbita seedlings increased with age and due to gamma irradiation treatments.

Free amino acids content of both varieties of cucumber and cucurbita in 5 and 10 day old seedlings, decreased with age and incresed due gamma irradiation treatments.

Proline content decreased in both varieties of cucumber with age, but increase with gamma irradiation treatments. While, proline content increased in both varieties of cucurbita with age and gamma irradiation treatments.

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Phenolic compounds content increased in both varieties of cucumber with age and gamma irradiation treatments. But in cucurbita varieties it decreased with age and increased due to gamma irradiation treatments.

Polyacrylamide gel electrophoresis (PAGE), showed changes in protein profile of shoot and root of cucumber seedlings var. I with time and gamma irradiation treatments. Also cucumber seedlings var II, showed marked changes in electrophoretic pattern included the number and intensity of protein bands.

Cucurbita seedlings var. I showed that no changes in protein profile with age but gamma irradiation treatments induced marked changes. While, cucurbita seedlings var. II expressed noticeable changes in protein profile with age and gamma irradiation treatments.

Polyacrylamide gel electrophoresis of peroxidase isozymes showed changes owing to gamma irradiation treatments, but no change with time in cucumber root seedlings var I was obtained. In cucumber shoot seedlings var. I peroxidase isozymes increased with age and gamma irradiated treatments. While, cucumber root seedlings var. II isozymes decreased with age, but in shoot seedlings no changes in isozyme number were observed with age or owing to gamma irradiation treatments.

Peroxidase isozymes number of cucubita seedlings var I increased with age and decreased owing to gamma irradiation treatments, but in cucurbita seedlings var II peroxidase isozyme band decreased with time or gamma irradiation treatment.

SDS-polyacrylamide gel electrophoresis showed no change in protein profile, but the number of band decreased with age and increased owing to gamma irradiation treatments in cucumber seedlings var. I. But in cucumber seedlings var II, no changes in electrophoretic pattern were obtained. While the number of protein bands decreased with age and owing to gamma irradiation treatments.

The two varieties of cucurebita (var I and var II) showed no change in electrophoretic. Pattern of protein decreased in the number of protein bands with age and owing to gamma irradiation treatments.

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