EFFECT OF GAMMA RADIATION AND TEMPERATURE ON SOME BIOCHEMICAL COMPONENTS OF PLANT

By

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Ain Shams University

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وَكَانَ فَضْلُ اللَّهِ عَلَيْكَ عَظِيمًا

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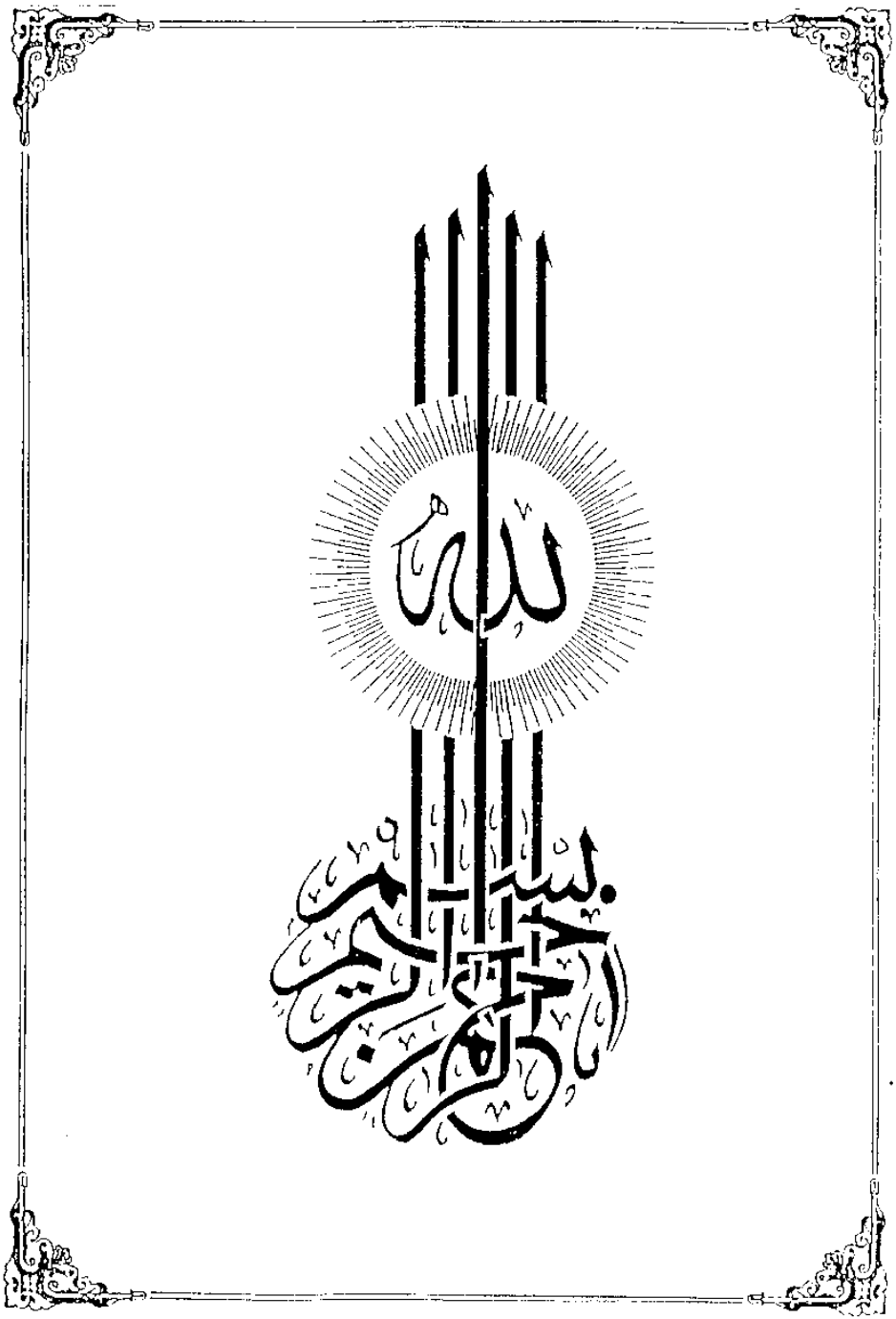

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ABSTRACT

Gamma radiation (5, 10 and 15 KGy) of biochemical components oybean, Peanut and Fenugreek seeds induced a decrease in moisture content, total lipids, unsaturated fatty acids and protein content.

Slight decrease in total soluble sugars were revealed in Soybean and Peanut seeds, while gamma radiation did not effect on total soluble sugars in Fenugreek seeds.

Gamma radiation (1, 2, 3, 4 and 5 K rad) caused increase in peroxidase and catalase activity by doses from 1 to 4 K rad but dose 5 Krad caused decrease in peroxidase and catalase activity in Soybean, Peanut and Fenugreek seedlings.

Heat treatment at 80 ^{0}C induced a change in moisture content, total lipid, fatty acids and protein content of Soybean, Peanut and Fenugreek seeds and slight increase in total soluble sugars.

Microwave heating with 5, 10 minutes caused lowering in moisture content under this study, while total protein content was not affected. Total soluble sugars increased meanwhile total lipids decreased.

Fatty acids of soybean generally increased except palmitic acid which decreased while fatty acids peanut oil decreased except oleic and linoleic acids increased. Microwave treatment led to increase linolenic acid in fenugreek seeds and at the same time decrease linoleic acid.

SDS- polyacrylamide gel electrophoresis howed slight change in protein profile with gamma radiation and storage for eight months , but the numbers of protein subunits decreased as affected by different doses. Also the same effect with heat treatment at 80 ^{0}C for different periods was noticed.

Key Words

- Gamma radiation
- Heat treatment
- Microwave
- Soybean
- Peanut
- Groundnut
-Fenugreek
-Enzyme
-Peroxidase
-Catalase

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