

BIOCHEMICAL STUDIES ON SOME GAMMA IRRADIATED VEGETABLE SEEDS DURING SEEDLING STAGE

By

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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 irradiation 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 increased 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.

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 cucurbita 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 cucurbita (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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CONTENTS

	Page
1. Abstract	
2. Acknowledgment	
3. List of tables	
4. List of figures	
I. Introduction	
II. Review of Literature	1
1. Effect of irradiation on seedling growth	1
2. Effect of gamma rays on protein and amino acids	6
3. Effect of gamma irradiation on the carbohydrates	17
4. Effect of gamma rays on phenolic compounds	22
5. Effect of gamma irradiation on enzymes	23
a) Acid phosphatase	23
b) Indole acetic acid oxidase	24
c) Peroxidase	27
d) Phenylalanine ammonia lyase	37
III. Materials and Methods	40
1. <i>Materials</i>	40
A) Sampling	40
B) Samples Preparation	40
1. Irradiation	40

	Page
2. Germination	41
3. Protein extraction	41
4. Fractionation of total soluble sugars and free amino acids.....	41
A) Soluble sugars.....	41
B) Free amino acids.....	42
5. Extraction of phenol compounds	43
Methods of analysis	43
1. Determination of soluble protein	43
2. Determination of free sugars.....	43
3. Determination of free amino acids.....	44
4. Determination of free proline.....	44
5. Determination of phenol compounds	45
6. Determination of enzymes activity.....	46
a) Acid phosphatase.....	46
b) Indole acetic acid oxidase.....	47
c) Peroxidase	47
d) Phenylalanine ammonia lyase	48
7. Electrophoresis analysis	49
a) PAGE electrophoresis of proteins.....	49
b) PAGE of peroxidase.....	51
c) SDS-PAGE electrophoresis.....	52

	Page
IV. Results and Discussion	56
1. The soluble protein contents	56
a) Cucumber vars. I and II.....	56
b) Cucurbita vars I. and II	59
2. Soluble sugars content.....	63
a) Cucumber vars I. and II.....	63
b) Cucurbita vars I. and II	66
3. Free amino acids content	70
a) Cucumber vars I. and II.....	70
b) Cucurbita vars I. and II	73
4. Proline content.....	75
a) Cucumber vars I. and II.....	75
b) Cucurbita vars I. and II	77
5. Phenols compounds content	80
a) Cucumber vars I. and II.....	80
b) Cucurbita vars I. and II	82
6. Enzymes activity	84
A) Acid phosphatase.....	84
a) Cucumber vars I. and II.....	84
b) Cucurbita vars I. and II.....	87
B) Indole acetic acid (IAA) oxidase	90
a) Cucumber vars I. and II.....	90
b) Cucurbita vars I. and II.....	93

	Page
C) Peroxidase	97
1. Peroxidase activity	97
a) Cucumber vars I. and II.....	97
b) Cucurbita vars I. and II.....	99
D) PAL activity.....	102
a) Cucumber vars I. and II.....	102
b) Cucurbita vars I. and II.....	104
7. Electrophoresis analysis	106
A) PAGE of extract protein	106
a) Cucumber var I	106
b) Cucumber var II.....	108
c) Cucurbita vars I. and II.....	112
B) Peroxidase electrophoresis.....	115
a) Cucumber var I	115
b) Cucumber var II.....	118
c) Cucurbita vars I. and II.....	121
C) SDS - PAGE electrophoresis	126
a) Cucumber var I	126
b) Cucumber var. II.....	127
c) Cucurbita var I.....	129
d) Cucurbita var II.....	130
VI. English Summary.....	135
V. References	142
VI. Arabic Summary	----

LIST OF TABLE

		Page
1.	Effect of gamma irradiation on tris borate soluble protein of cucumber beta alpha seedlings.....	58
2.	Effect of gamma irradiation on tris borate soluble protein of cucurbita pepo seedlings.....	60
3.	Effect of gamma irradiation on soluble carbohydrates of cucumber beta alpha seedlings.....	65
4.	Effect of gamma irradiation on soluble carbohydrates of cucurbita pepo seedlings.....	69
5.	Effect of gamma irradiation on total free amino acids content of cucumber beta alpha seedlings	72
6.	Effect of gamma irradiation on total free amino acids content of cucurbita pepo seedlings	74
7.	Effect of gamma irradiation on proline content of cucumber beta alpha seedlings.....	76
8.	Effect of gamma irradiation on proline content of cucurbita pepo seedlings.....	79
9.	Effect of gamma irradiation on phenolic compounds content of cucumber beta alpha seedlings	81
10.	Effect of gamma irradiation on phenolic compounds content of curcrubita pepo seedlings.....	83

	Page
11. Effect of gamma irradiation on acid phosphatase activity of cucumber beta alpha seedlings.....	85
12. Effect of gamma irradiation on acid phosphatase activity of cucurbita pepo seedlings.....	89
13. Effect of gamma irradiation on IAA oxidase activity of cucumber beta alpha seedlings.....	91
14. Effect of gamma irradiation on IAA oxidase activity of cucurbita pepo seedlings.....	94
15. Effect of gamma irradiation on peroxidase activity of cucumber beta alpha seedlings.....	98
16. Effect of gamma irradiation on peroxidase activity of cucurbita pepo seedlings.....	101
17. Effect of gamma irradiation on PAL activity of cucumber beta alpha seedlings.....	103
18. Effect of gamma irradiation on PAL activity of cucurbita pepo seedlings	105
19. Relative composition percentage of the protein bands extracted from cucumber beta alpha seedlings Var. I...	108
20. Relative composition percentage of the protein bands extracted from cucumber beta alpha seedlings var. II..	111
21. Relative composition percentage of the protein bands extracted from cucurbita pepo seedlings var I and II ...	114

	Page
22. Relative composition percentage of the peroxidase bands extracted from cucumber beta alpha seedlings var I	117
23. Relative composition percentage of the peroxidase bands extracted from cucumber beta alpha seedlings var II...	120
24. Relative composition percentage of peroxidase bands extracted from cucurbita pepo seedlings var I and II ...	123

LIST OF FIGURES

	Page
1. SDS-PaGE of the extracted of cucumber var I and var II.	128
2. SD-PaGE of the extracted of cucurbita vr I and var II.....	132

I. INTRODUCTION