Table No. 1

Exposure of Glycine solution to light
Concentration of Glycine — 0.5g./500ml water
Concentration of sucrose — 10g/500ml water

S.N.	Container	Source of light	Exposure time (hours)	Results of Chromatographic analysis
1.	Pyrex	1000 watt philips bulb	0–160	Glycine
			160–240	Glycine and a faint yellow spot
			240–320	Glycine and diglycine.
			320–600	Glycine and diglycine.
2.	Quartz	~~0–100~~	0–100	Glycine
			100–180	Glycine and a faint peptide spot.
			180–600	Glycine and a diglycine spot.
3.	Pyrex and Quartz containers both covered with thick black cloth	— — — —	0 — 600	Glycine.
4.	Pyrex	light	0–150	Glycine
			150–200	Glycine and a faint spot
			200–240	Glycine and diglycine.
			240–600	Glycine, Diglycine.
5.	Quartz	sun	0–40	Glycine
			40–80	Glycine, a faint spot
			80–180	Glycine, Alanine, faint spots
			180–200	Glycine, Alanine, Norleucine, faint spots
			200–220	Glycine, Alanine, Norleucine, faint spots
			220–240	Glycine, Alanine, Norleucine, diglycine, Faint spots.
			240–280	Glycine, Alanine, Norleucine, diglycine, Glycyl-alanine, Faint spots.
			280–300	Glycine, Alanine, Norleucine, diglycine Glycyl-alanine, Glycyl-norleucine.
			300–400	Gly, Ala, Norleucine, diglycine, Gly-ala, Glycyl-norleucine, faint spot.
			400–440	Gly, Ala, diglycine, triglycine, Gly-alanine
			440–600	Gly, Ala, diglycine, triglycine, Glycyl-alanine, glycyl-norleucine & a faint yellow spot.
6.	Pyrex and Quartz vessels covered with thick black cloth	— — — —	0–600	Glycine.

(1) Sterilised solution of glycine in form of sucrose when irradiated by 1000 watts electric light for 600 hours shows no change when kept and no raw amino acid appears in the mixture. The mixtures kept both in pyrex and quartz flask indicated the formation of diglycine. No formation of diglycine was observed in the similar mixture kept in dark. Sun light exposure caused more pronounce photolysis of amino acids in the mixture kept in quartz flasks and alanine and norleucine appeared in the mixture after about 200 hours of exposure. Amongst the peptides formed in the mixture diglycine, glycyl-alanine, glycyl-norleucine and triglycine have been identified. Similar mixture exposed in pyrex flask showed the formation of only diglycine in 600 hours of exposure and no peptide formation or photolysis was observed in the similar mixtures kept in dark.

(2) photolysis

Table No. 2

Exposure of l-leucine solution to light
Concentration of l-leucine – 0.5g/500 ml water.
Concentration of sucrose – 0.5g/500 ml water.

	Container	~~Exposure~~ ~~Time~~ Source of light	Exposure Time (Hours)	Results of Chromatographic analyses
1.	Pyrex	1000 Watt philips bulb	0 – 200	leucine
			200 – 250	leucine, a faint spot
			250 – 300	leucine, leucyl-l-leucine.
			300 – 600	leucine, leucyl-l-leucine.
2.	Quartz		0 – 150	leucine
			150 – 200	leucine, a faint spot.
			200 – 600	leucine, ~~[illegible]~~ dileucine.
3.	Pyrex and Quartz vessels covered with black cloth		0 – 600	l-leucine.
4.	Pyrex	sun light	0 – 200	leucine
			200 – 250	leucine, dileucine.
			250 – 600	leucine, dileucine.
5.	Quartz		0 – 100	l-leucine,
			100 – 150	l-leucine, Faint spot.
			150 – 450	l-leucine, dileucine.
			450 – 600	l-leucine, dileucine, few faint spots which could not be identified.
6.	(Pyrex and Quartz) wrapped with thick black cloth		0 – 600	l-leucine

II Irradiation of ~~The [illegible] light on~~ Leucine solution by visible light only forms Le-l-Le on 300 hours of exposure and no other change is observed even if the period of irradiation is prolonged upto 600 hours. No photolysis of l-leucine is observed even in solution which is exposed to sun light in quartz flask.

Table No. 3

Exposure of l-Glutamic acid solution to light.

Concentration of glutamic acid – 0.5g/500 ml water

Concentration of sucrose — 0.5g/500 ml water

S.N.	Container	Source of light ~~Exposure Time (hours)~~	Exposure time (hours)	Results of chromatographic analysis
1.	Pyrex	↑		
		1000	0 - 200	l-glutamic acid
		Watt	200 - 250	l-glutamic acid, a faint spot.
			250 - 300	l-glutamic acid, diglutamic acid.
		philips	300 - 600	l-glutamic acid, diglutamic acid.
2.	Quartz	—	0 — 100	Glutamic acid
		bulb	100 - 200	Glutamic acid, a faint spot.
			200 - 250	Glutamic acid, glutamyl-glutamic acid.
			250 - 450	Glutamic acid, diglutamic acid.
			450 - 600	Glutamic acid, diglutamic acid.
3.	(Pyrex and quartz) wrapped with thick black cloth		0 - 600	Glutamic acid.
4.	Pyrex	↑ Sun	0 — 100	l-glutamic acid.
			100 - 200	l-glutamic acid, a faint spot
			200 - 600	l-glutamic acid, diglutamic acid.
5.	Quartz	light	0 — 100	l-glutamic acid,
			100 - 150	l-glutamic acid, α-amino butyric acid, few faint spots.
			150 - 200	l-glutamic acid, α+β-amino butyric acid, and few faint spots.
			200 - 250	l-glutamic acid, α-+β-amino butyric acid, glycine and few faint spots.
			250 - 300	l-glutamic acid, α-+β-amino butyric acid diglutamic acid, glycine, few faint spots.
			300 - 600	l-glutamic acid, α-+β-amino butyric acid, glycyl-l-glutamic acid, diglutamate + few faint spots.
6.	(Pyrex & Quartz) wrapped with thick black cloth		0 — 600	Glutamic acid.

(4)

Irradiation of sterilised solution of l-glutamic acid in presence of sucrose as energy material forms glutamyl-l-glutamic acid in the mixture on 300 hours exposure in pyrex flask and on 250 hours exposure when the mixture is kept in quartz flask. Hour if Sun light is used as the source of irradiation in quartz flask α-amino acid butyric acid appears after 150 hours exposure, β-amino butyric acid in 200 hours, glycine on 250 hours exposure, glutamyl-glutamic acid on 300 hours exposure and glycyl-l-glutamic acid in 600 hours exposure.

Table No. 4

Exposure of glycine and l-leucine solution to light.

Concentration of Glycine — 0.5g./500 ml water
Concentration of leucine — 0.5g./500 ml water
Concentration of sucrose — 10g/500 ml water

S.N.	Container ~~Source of light~~	source of light	Exposure time	Result of chromatographic analysis
1.	Pyrex	~~0~~ 1000 watt philips bulb	0 - 100	Glycine, leucine
			100 - 150	Glycine, leucine, few faint spots
			150 - 200	Diglycine, glycine, leucine, a faint spot
			200 - 250	Diglycine, glycine, leucine, glycyl-l-leucine
			250 - 600	Diglycine, glycine, leucine, glycyl-l-leucine and a faint spot.
2.	Quartz		0 - 100	Glycine, leucine.
			100 - 200	Glycine, leucine, a faint spots.
			200 - 250	Glycine, leucine, diglycine, few faint spots.
			250 - 300	Glycine, leucine, diglycine, glycyl-l-leucine.
			300 - 600	Glycine, leucine, diglycine, glycyl-l-leucine and few faint spots.
3.	(Pyrex and Quartz) wrapped with thick black cloth.		0 - 600	Glycine, leucine.
4.	Pyrex	Sun	0 - 100	Glycine, leucine
			100 - 200	Glycine, leucine and a faint spots
			200 - 250	Glycine, leucine, diglycine, a faint spot
			250 - 300	Glycine, leucine, diglycine, Glycyl-l-leucine.
			300 - 600	Glycine, leucine, diglycine, Glycyl-l-leucine.
5.	Quartz	light	0 - 50	Glycine, leucine
			50 - 100	Glycine, leucine, few faint spots.
			100 - 150	Glycine, leucine, diglycine, few faint spots.
			150 - 250	Glycine, leucine, diglycine, few faint spots.
			250 - 350	Glycine, leucine, diglycine, glyGl-l-leucine and few faint spots
			350 - 450	Glycine, leucine, diglycine, glycyl-l-leucine few more spots.
			450 - 600	Glycine, leucine, diglycine, glycyl-l-leucine, l-leucyl-l-leucine, few faint spots.
6.	(Pyrex and Quartz vessel) wrapped with thick black cloth.		0 - 600	Glycine, leucine.

~~Gly~~ A mixed solution of l-leucine & glycine in spring water on irradiation with artificial light in Pyrex flask forms diglycine on 200 hrs exp. and glycyl-l-leucine on 250 hrs exposure. No further change takes place upto 600 hrs of exposure. If the same mixture is exposed to sun light in quartz flask diglycine is formed on 150 hrs exposure, glycyl-l-leucine on 350 hrs exposure & l-leucyl-l-leucine on 600 hrs of exposure. ~~Thus~~ in spring solution

Thus conversion of leucine [formation of diglycyl is enhanced and (ii), photolysis of glycine to other amino acids is checked and also the formation of l-Le-l-Leu is delayed.

Table No. 5

Exposure of Glutamic acid and l-leucine solution to light.

concentration of l-Glutamic acid — 0.5g/500 ml water
concentration of l-leucine — 0.5g/500 ml water
concentration of sugar — 10g./500 ml water

S.N.	Container	source of light	Exposure time	Results of chromatographic analysis
1.	Pyrex	1000 Watt Philips Bulb	0 - 100	Glutamic acid, leucine
			100 - 150	Glutamic acid, leucine, few faint spots
			150 - 250	Glu; leucine, few faint spots.
			250 - 350	Glutamic acid, leucine, l-leucyl-l-glutamic acid
			350 - 600	Glutamic acid, leucine, l-leucyl-l-glutamic acid, l-leucyl-l-leucine.
2.	Quartz	↓	0 - 150	Glutamic acid, l-leucine.
			150 - 200	Glutamic acid, l-leucine, few faint spots
			200 - 250	Glutamic acid, l-leucine; l-leucyl-l-glutamic acid and few faint spots.
			250 - 300	Glutamic acid, l-leucine, l-leucyl-l-leucine, l-leucyl-l-glutamate; few faint spots.
			300 - 350	Glutamic acid, l-leucine, dileucine, l-leucyl-l-glutamate, few faint spots.
			350 - 600	Glu, leu, dileucine, l-leucyl-l-glutamic acid and few faint spots.
3.	(Pyrex and Quartz) wrapped with thick black cloth	↓	0 - 600	Glycine, leucine.
4.	Pyrex	↑ Sun light	0 - 150	Glycine, leucine,
			150 - 200	Glycine, leucine, few faint spots.
			200 - 250	Glu, leucine, l-leucyl-glutamate and few faint spots.
			250 - 350	Glutamic acid, leucine, l-leucyl-glutamate and few faint spots.
			350 - 600	Glu, leucine, l-leucyl-glutamate and few faint spots.
5.	Quartz	↓	0 - 150	Glutamic acid, leucine.
			150 - 200	Glu, leu, l-leucyl-l-glutamic acid, few faint spots.
			200 - 250	Glu, leu, l-leucyl-l-glutamic acid, few faint spots.
			250 - 600	Glu, leu, l-leucyl-l-glutamate, dileucine few faint spots
			600 - 700	Glu, leu, l-leucyl-l-glutamate, dileucine α-amino butyric acid and few faint spots which could not be identified.
6.	(Pyrex & Quartz vessel) wrapped with thick black cloth	l-leucyl-glutamic acid	0 - 600	Glutamic, leucine,

In the [illegible] of sucrose the solution of leu. & glutamic acid on irradiation with artificial light in Pyrex flask [illegible] forms le.-leu. [illegible] on 350 hrs. expo., & [illegible] on 600 hrs of exposure. & Thus formation of diglutamic acid and dileucine both is delayed [illegible]. Diglutamic acid does not appear in the mixture even after 600 hrs of exposure. but [illegible] do appear after 600 hrs. The same mixture is exposed to S. light in quartz flask [illegible] the formation of l-leucyl-l-glutamic acid on 200 hrs of exposure, dileucine on 600 hrs exposure and α-amino [illegible] after 700 hrs of exp. Thus photolysis of glutamic and forming α-amino butyric acid is [illegible] delayed in [illegible]

Table No. 6

Exposure of Glycine and l-Glutamic acid solution.

Concentration of Glycine — 0.5 g / 500 ml water

Concentration of Glutamic acid — 0.5 g / 500 ml water

Concentration of sucrose — 10 g / 500 ml water

S.N.	Container	Source of light	Exposure time	Result of Chromatographic analysis
1.	Pyrex	1000 watt philips bulb.	0 - 150	Glycine, glutamic acid
			150 - 200	Glycine, Glutamic acid and few faint spots.
			200 - 250	Gly, Glu, Glycyl-l-Glutamic acid and a faint spots.
			250 - 300	Gly, Glu, Glycyl-l-Glutamic acid ~~and~~, diglycine; ~~[illegible]~~
			300 - 350	Gly, Glu, Glycyl-l-glutamic acid Diglycine
			350 - 600	Gly, Glu, Glycyl-l-glutamic acid Diglycine.
2.	Quartz		0 - 100	Glycine, Glutamic acid
			100 - 150	Glycine, Glutamic acid, few faint spots.
			150 - 200	Gly, Glu, Glycyl-l-glutamic acid, a faint spot.
			200 - 300	Gly, Glu, Glycyl-l-glutamic acid, Diglycine.
			300 - 600	Gly, Glu, glycyl-l-glutamic acid, diglycine.
3.	(Pyrex and Quartz) wrapped with thick black cloth.		0 - 600	Glycine, Glutamic acid
4.	Pyrex	Sun light	0 - 100	Glycine, Glutamic acid.
			100 - 150	Glycine, Glutamic acid and few faint spots
			150 - 200	Glycine, Glu, Glycyl-l-glutamic acid + a faint spot.
			200 - 300	Glycine, Glu, Glycyl-l-glutamic acid + diglycine.
			300 - 600	Gly, Glu, Glycyl-l-glutamic acid, diglycine.
5.	Quartz		0 - 100	Glycine, Glutamic acid and few faint spots
			100 - 150	Gly, Glu, Diglycine, Glycyl-l-glutamic acid and few faint spots.
			150 - 200	Gly, Glu, Diglycine, Gly-l-Glutamic acid, few faint spots.
			200 - 450	Gly, Glu, Diglycine, Gly-l-Glutamic acid, few faint spots
			450 - 600	Glycine, Glu, Diglycine, Gly-l-Glutamic acid α- & β-amino butyric acids.
6.	(Pyrex and Quartz) wrapped with thick black cloth		0 - 600	Glycine, Glutamic acid.

A strong aqueous solution of glycine + glutamic acid on exposure to ~~[illegible]~~ artificial light shows the formation of glycyl-l-glutamic acid at 250 hrs exposure, diglycine on 300 hrs exposure, whereas similar mixture kept in dark ~~[illegible]~~ remains without any change. When sunlight is used as the source of exposure it gives that formation of glycyl-l-glutamic acid and diglycine is obtained 150 hrs of exposure, and on 600 hrs exposure formation of α-β-amino butyric acid is also observed. Similar mixture in dark remains unchanged.

Glycyl-glutamic ~~[illegible]~~ formation is easier than diglycine ~~[illegible]~~ formation even in absence of ultra violet light.

Table No. 7

Exposure of Glycine and tyrosine solution to light.

Concentration of Glycine — 0.5g/500ml

Concentration of tyrosine — 0.5g/500ml

Concentration of sucrose — 10g/500ml.

S. N.	Container	Source of light	Exposure time	Results of chromatographic analysis
1.	Pyrex	1000 watt philips bulb.	0 — 50	Glycine, tyrosine and a faint spots
			50 - 100	Glycine, tyrosine, yellow spot of Glycyl-l-tyrosine
			100 - 150	Gly, tyrosine, Glycyl-l-tyrosine and a faint spot.
			150 - 200	Gly, tyrosine, Glycyl-l-tyrosine, tyrosyl-tyrosine.
			200 - 400	Gly, tyrosine faint spot, Glycyl-l-tyrosine, tyrosyl-tyrosine
			400 - 600	Gly, very faint tyrosine spot, Glycyl-l-tyrosine tyrosyl-tyrosine.
2.	Quartz	—	0 — 50	Glycine, tyrosine, a faint spot.
			50-100	Glycine, tyrosine, yellow spot of Glycyl-l-tyrosine
			100 — 150	Glycine, tyrosine, Glycyl-l-tyrosine, tyrosyl-tyrosine.
			150 — 400 — 600	Glycine, faint tyrosine spot, Glycyl-l-tyrosine tyrosyl-l-tyrosine.
3.	(Pyrex and Quartz) wrapped with thick black cloth	—	0 — 600	Glycine, tyrosine
4.	Pyrex	Sun light	0 - 50	Glycine, tyrosine, faint spots.
			50 - 100	Glycine, tyrosine, Glycyl-l-tyrosine
			100 - 200	Glycine, tyrosine, Glycyl-l-tyrosine, tyrosyl-tyrosine.
			200 - 400	Gly, tyrosine, Glycyl-l-tyrosine, tyrosyl-tyrosine.
			400 - 600	Gly, tyrosine (faint), Glycyl-l-tyrosine, tyrosyl-tyrosine.
5.	Quartz		0 - 20	~~Glycyl~~ Glycine, tyrosine, few faint spots.
			0 - 50	Glycine, tyrosine, Glycyl-l-tyrosine, faint spots.
			50 — 100	Glycine, tyrosine, Glycyl-l-tyrosine, tyrosyl-tyrosine
			100 - 200	Glycine, very faint spot of tyrosine, Glycyl-l-tyrosine, tyrosyl-tyrosine.
			200 - 400 - 600	Glycine, very faint spot of tyrosine, Glycyl-l-tyrosine, tyrosyl-tyrosine and few faint spots which could not be identified.
6.	(Pyrex + Quartz) Wrapped with thick black cloth	—	0 — 600	Glycine, tyrosine.

(8)

~~The~~ An standard solution of glycine + tyrosine in presence of sucrose ~~showed~~ on exposure to artificial light [illegible] thus the formation of Glycyl-l-tyrosine on 100 hrs exposure, tyrosyl-l-tyrosine on 200 hrs exposure whereas similar mixture in dark remain unchanged. If sun light is used as source of irradiation, [illegible] formation of Glycyl-l-tyrosine is [illegible] on glycyl-l-tyrosine and tyrosyl-l-tyrosine on 100 hrs exposure.

Table No. 8.

Exposure of tyrosine solution to light.

Concentration of Tyrosine — 0.5 g/500 ml

Concentration of sucrose — 10 g./500 ml.

S.N.	Container	Source of light	Exposure time (Hours)	Results of Chromatographic studies.
1.	Pyrex	↑	0 – 50	~~Glycine~~, Tyrosine, a faint spot
			50 – 100	Tyrosine, a faint spot
		1000	100 – 200	Tyrosine, Tyrosyl-tyrosine
		Watt	200 – 600	Faint tyrosine spot, tyrosyl-tyrosine.
2.	Quartz	Philips	0 – 50	Tyrosine, faint spot.
			~~50~~ – 100	Tyrosine, faint spot.
			100 – 200	Tyrosine, tyrosyl-tyrosine.
		bulb	200 – 600	Faint tyrosine spot, tyrosyl-tyrosine.
3.	(Pyrex and Quartz) wrapped with thick black cloth.	↓	0 – 600	Tyrosine.
4.	Pyrex	↑	0 – 50	Tyrosine, very faint spot
			50 – 100	Tyrosine, faint spot
		Sun	100 – 200	Tyrosine, Tyrosyl-tyrosine.
			200 – 600	Very faint tyrosine spot, tyrosyl-tyrosine.
5.	Quartz	light	0 – 50	Tyrosine, few faint spots
			50 – 100	Tyrosine, Glycine, faint spots.
			100 – 150	Tyrosine, Glycyl-tyrosine, faint spot.
			150 – 200	Tyrosine, Glycyl-tyrosine, tyrosyl-tyrosine.
			200 – 600	Very faint tyrosine spot, Glycyl-tyrosine, tyrosyl-tyrosine, few faint spots.
6.	(Pyrex and Quartz) wrapped with thick black cloth	↓	0 – 600	Tyrosine.

(6)

In presence of sucrose as the energy material if sterilised tyrosine solution is exposed to electric light 200 hours exposure indicates the formation of tyrosyl-tyrosine both in pyrex & flask flasks whereas similar ones kept in the dark ~~[illegible]~~ remains without any change. When Sunlight is used as the source of irradiation in quartz flask formation of glycine is observed on 100 hrs exposure, glycyl-tyrosine on 150 hrs exposure and tyrosyl-tyrosine on 200 hrs exposure whereas similar controls kept in dark contain only tyrosine.

First glycine is formed for tyrosine and but it needs ultra violet light. Glycine & tyrosine combine more easily to form the dipeptide than glycyl-tyrosine & tyrosine.

Table No. 9

Exposure of Glycine and tryptophane solution to light

Concentration of Glycine — ·5g./500 ml.
Concentration of tryptophane — ·2g/500 ml.
Concentration of sucrose — 10g./500 ml.

S.N.	Container	Source of light	Exposure time	Result of Chromatographic analysis.
1.	Pyrex	↑ 100 watt	0–50	Glycine, tryptophane.
			50–100	Glycine, tryptophane, few faint spots.
		philips	100–200	Glycine, tryptophane, Glycyl-tryptophane + Serine.
		bulb	200–600	↳ Gly, tryptophane, Glycyl-tryptophane, serine.
2.	Quartz	—	0–50	Glycine, l-tryptophane
		↓	50–100	Glycine, tryptophane, faint spots.
			100–200	Glycine, Glycyl-tryptophane, tryptophane.
			200–600	Glycine, Gly-tryptophane, very faint spot of tryptophane.
3.	(Pyrex and Quartz), wrapped with thick black cloth	— ↓	0–600	Glycine, tryptophane.
4.	Pyrex	↑	0–50	Glycine, tryptophane
			50–100	Glycine, tryptophane, faint spots.
			100–250	Glycine, tryptophane, Glycyl-l-tryptophane.
		Sun	250–400	Gly, very faint tryptophane spot, Glycyl-tryptophane,
		light	400–600	Gly, very faint tryptophane spot, Glycyl-tryptophane.
5.	Quartz	—	0–20	Glycine, tryptophane, faint yellow peptide spot.
			20–50	Glycine, tryptophane, Glycyl-tryptophane, faint spots.
			50–100	Glycine, tryptophane, Glycyl-tryptophane, aspartic acid. faint spots
		↓	100–200–600	Gly, tryptophane, Glycyl-tryptophane, aspartic acid + few faint spots.
6.	control (Pyrex & Quartz) wrapped with thick black cloth	—	0–600	Glycine, tryptophane.

When a mixture of glycine & tryptophane in presence of sucrose is irradiated by artificial light in Pyrex flask — formation of Glycyl-tryptophan is to be obtained on 50 or 200 hours of exposure, If the same mixture is exposed to sun light & in presence of quartz flask Glycyl-tryptophane is found on 50 hours exposure & Aspartic acid is found on 100 hrs exposure. Comparing this result with the results obtained by irradiating of tryptophane & glycine in presence of sucrose separately it is found that for the formation of glycyl-tryptophane it is necessary that glycine should be present in larger quantity in the mixture and Serine is photolytically formed from tryptophane but this formation is retarded/hindered in presence of ultra-violet light.

Table No. 10.

Exposure of l-tryptophane solution to light.

Concentration of l-Tryptophane — 0.2g/500 ml water.

Concentration of sucrose — 10g./500 ml water.

S.N.	Container	Source of light	Exposure time (hours)	Results of Chromatographic analysis
1.	Pyrex	↑ 1000 watt philips bulb	0 - 50	Tryptophane, (faint spots)
			50 - 100	Tryptophane, ditryptophane.
			100 - 600	Very faint tryptophane spot, faint ditryptophane spot.
2.	Quartz	↓	0 - 50	l-tryptophane, faint spot.
			50 - 100	l-tryptophane, ditryptophane.
			100 - 600	faint tryptophane spot, faint ditryptophane spot.
3.	(Pyrex and Quartz) wrapped with thick black cloth.	↓	0 - 600	Tryptophane.
4.	Pyrex	↑ Sun light	0 - 50	tryptophane.
			50 - 100	tryptophane, ditryptophane.
			100 - 600	~~v~~ faint tryptophane spot, faint ditryptophane spot.
5.	Quartz		0 - 50	tryptophane, few faint spots.
			50 - 100	tryptophane, alanine, few faint spots
			100 - 150	tryptophane, aspartic acid, alaine, alanyl-tryptophane, few more faint spots.
			150 - 200	tryptophane, alanine, aspartic acid, ~~analyl~~ alanyl-tryptophane, glycine & few faint spots.
			200 - 250	tryptophane, alanine, aspartic acid, glycine, alanyl-tryptophane, Glycyl-alanine, serine.
			250 - 600	faint tryptophane, alanine, aspartic acid glycine, alanyl-tryptophane, Glycyl-alanine serine, ~~[illegible]~~ some faint spots could not be identified.
6.	(Pyrex & Quartz) wrapped with thick black cloth.	↓	0 - 600	Tryptophane.

[Marginal note, written sideways:] Presence seen in the solution of tryptophane ~~[illegible]~~ from ditryptophane in 100 hr exposure with artificial light in Pyrex flask and same [illegible] hinders the photolysis of tryptophane to alanine under these conditions. If this mixture is irradiated by sunlight and in Pyrex flask Alanine is first [illegible] after 50 hrs exposure, [illegible] in exposure with no ~~[illegible]~~ 200 hrs. [illegible] seen, Aspartic acid [illegible] in 150 hrs exposure and alanyl tryptophane is also seen in this mixture after this. Glycine appears in 200 hrs exposure in 250 hrs exp. Glycyl-alanine is [illegible] photolysis. Thus the photolysis & peptide formation is [illegible] with sunlight & Quartz flask and formation of alanyl-tryptophane [illegible] by [illegible] water [illegible] Pyrex + [illegible] visible light.

Table No. II.

Exposure of l-valine solution to light.

Concentration of l-valine — 0.2 g. / 500 ml water.

Concentration of sucrose — 10 g. / 500 ml. water.

S.No.	Container	Source of light	Exposure time (hours)	Results of Chromatographic analysis.
1.	Pyrex	1000 watt philips bulb	0 – 50	Valine,
			50 – 200	Valine, faint spot.
			200 – 300	Valine, Valyl-Valine.
			300 – 600	Valine, Valyl-Valine.
2.	Quartz		0 – 50	Valine,
			50 – 200	Valine, Valyl-valine,
			200 – 600	Valine, Valyl-Valine.
3.	Pyrex & Quartz) wrapped with thick black cloth.		0 – 600	Valine.
4.	Pyrex	Sun light	0 – 50	Valine
			50 – 200	Valine, faint spot.
			200 – 600	Valine, Valyl-Valine.
5.	Quartz		0 – 150	Valine.
			150 – 200	Valine, Glycine. faint spots.
			200 – 250	Valine, Glycyl-Valine, Valyl-Valine.
			250 – 600	Valine, Glycyl-Valine, Valyl-Valine.
6.	(Pyrex & Quart) wrapped with thick black cloth.		0 – 600	Valine.

The solubility of l-valine on exposure to artificial light from Valyl-valine in 300 hrs exposed to light the same solubility is exposed to Sunlight in past Quartz flask Glycine is fed in 200 hrs exposed, & glycyl-valine & Valyl valine in 250 hrs.

Table No. 12.

Exposure of Glycine and l-Valine solution.
Concentration of Glycine — 0.5 g/500 ml.
Concentration of l-Valine — 0.2 g/500 ml.
Concentration of sucrose — 10 g./500 ml.

S.N.	Container	Source of light	Exposure time (hours)	Results of chromatographic analysis
1.	Pyrex	↑ 1000 Watt philips bulb. ↓	0 – 150	Glycine, Valine,
			150 – 200	Glycine, Glycyl-l-valine, Valine.
			200 – 600	Gly, Gly-l-valine, Valine.
2.	Quartz		0 – 100	Glycine, Valine,
			100 – ~~150~~ 150	Gly, valine, Glycyl-l-valine.
			150 – 300	Gly, valine, Glycyl-l-Valine, Valyl-valine.
			300 – 600	" " " "
3.	(Pyrex & Quartz) wrapped with thick black cloth.	↓	0 – 600	Glycine, Valine.
4.	Pyrex	↑ sun light ↓	0 – 150	Glycine, valine
			150 – 300	Glycine, Glycyl-l-valine, valine
			300 – 600	Glycine, Glycyl-l-valine, Valyl-valine Valine.
5.	Quartz	↓	0 – 100	Glycine, valine,
			100 – 200	Gly, Val., Glycyl-l-valine,
			200 – 250	Gly, Val., Glycyl-l-valine, Valyl-valine
			250 – 600	Gly, Val., Glycyl-l-valine, Valyl-valine & few faint spots which could not be identified.
6.	Pyrex & Quartz flask) wrapped with thick black cloth.	↓	0 – 600	Glycine, valine.

In mixed a mixed solution of l-valine + glycine in presence of sucrose with artificial light in a pyrex flask formation of glycyl-l-valine is observed in 200 hrs exposure. A similar mixture on mixing with sunlight in quartz flask glycyl-l-valine ~~+ valyl-l-valine~~ in 1250 hrs exposure & valyl-l-valine in 250 hrs exposure.

Thus photolysis of valine to glycine is hindered in presence of sucrose in the ~~same~~ irradiated mixture. High concentration of glycine in the mixture favours the formation of glycyl-valine hinders the formation of divaline in a mixture of glycine + valine. The formation of divaline needs ultraviolet irradiation where as for the formation of glycyl-valine visible light is sufficient.

Table No. 13.

Exposure of Aspartic acid solution to light.

Concentration of Aspartic acid — 0.2g./500 ml water

concentration of sucrose — 5g./500 ml water.

S.N.	Container	Source of light	Exposure time (hours)	Result of chromatographic analysis
1.	Pyrex	↑ 1000 Watt philips	0 - 100	Aspartic acid.
			100 - 200	Aspartic acid, a faint spot.
			200 - 250	Aspartic acid, [illegible], a faint spot.
			250 - 400	Aspartic acid, diaspartic acid spot.
			400 - 600	" " " "
2.	Quartz	Bulb ↓	0 - 100	Aspartic acid.
			100 - 200	Aspartic acid, diaspartic acid.
			200 - 600	Aspartic acid, diaspartic acid.
3.	(Pyrex and Quartz) wrapped with thick black cloth	↓	0 - 600	Aspartic acid.
4.	Pyrex	↑	0 - 100	Aspartic acid.
			100 - 250	Aspartic acid, a faint spot.
			250 - 450	Aspartic acid, diaspartic acid
			450 - 600	" " " "
5.	Quartz	Sun light ↓	0 - 100	Aspartic acid
			100 - 150	Aspartic acid, a faint spot.
			150 - 200	Aspartic acid, Glycine, few faint spot.
			200 - 300	Aspartic acid, Glycyl-aspartic acid, alanine
			300 - 400	Aspartic acid, Glycyl-aspartic acid, Glycine, alanine, [illegible]
			400 - 600	Gly, ala, Asp, Glycyl-aspartic acid, Gly-Gly, Gly-alanine, few more spots which could not be identified.
6.	(Pyrex and Quartz) wrapped with thick black cloth	↓	0 - 600	Aspartic acid.

Table No. 14

Exposure of l-Histidine solution to light.

Concentration of l-histidine — 0.2g / 500 ml water.

Concentration of sucrose — 10g / 500 ml water.

S.N.	Container	Source of light	Exposure time (hours)	Result of chromatographic analysis
1.	Pyrex	↑ 1000 Watt Philips bulb.	0 – 50	Histidine, few faint spot.
			50 – 100	Histidine, Histidyl- Histidine, Glycine.
			100 – 600	faint histidine spot, Histidyl Histidine Glycine.
2.	Quartz		0 – 50	Histidine,
			50 – 100	Histidine, Histidyl- Histidine, serine.
			100 – 600	faint Histidine, Histidyl- Histidine, serine.
3.	Pyrex + Quartz wrapped with thick black cloth	↓	0 – 600	Histidine
4.	Pyrex	↑ Sun light	0 – 100	Histidine, few faint spots
			100 – 200	Histidine, Histidyl- histidine, Glycine
			200 – 600	" " "
5.	Quartz	↓	0 – 100	Histidine, faint spots.
			100 – 150	Histidine, Glycine, Aspartic acid, few faint spots
			150 – 200	Histidine, Histidyl- Histidine, Glycyl-Histidine, Aspartic acid, Glycine
			200 – 400	Glycine, Histidine, aspartic acid, Glutamic acid, alanine, serine, Dihistidine, diglycine, Glycyl- histidine, Gly-alanine few more spots
			400 – 600	Gly, Al, Hist, aspartic acid, Glu, serine diglycine, dihistidine, Gly- histidine, Gly- alanine, asparagine. few faint spots could not be identified
6.	(Pyrex & Quartz) wrapped with thick black cloth	↓	0 – 600	Histidine.

Table No. 15

Exposure of Glycine solution to light.

concentration of Glycine – 0.5 g / 500 ml water.

S.N.	Container	source of light	Exposure time (hours)	Result of Chromatographic analysis.
1.	Pyrex	↑ 1000 Watt	0 – 50	Glycine
			50 – 200 – – –	Glycine
			200 – 300 –	Glycine, a faint spot.
			300 – 400	Glycine, Glycyl-glycine.
			400 – 600	Glycine, diglycine.
2.	Quartz	philips bulb.	0 – 250	Glycine,
			250 – 400	Glycine, Glycyl-glycine.
			400 – 600	" " "
3.	(Pyrex and Quartz) wrapped with thick black cloth.	— — — ↓	0 – 600	Glycine.
	Pyrex	— — — ↑ Sun light	0 – 150	Glycine.
			150 – 300	Glycine, diglycine
			300 – 600	Glycine, diglycine
	Quartz		0 – 200	Glycine, a faint spot
			200 – 300	Glycine, diglycine,
			300 – 400	Glycine, diglycine
			400 – 600	Glycine, diglycine, faint alanine spot.
	(Pyrex and Quartz) wrapped with thick black cloth.	↓	0 – 600	Glycine.

(1)

(2) Sterilised aqueous solution of glycine, above is exposed to light in pyrex or quartz flasks, The mixtures exposed to light showed the presence of glycyl-glycine both in pyrex and quartz flasks while as no formation of a peptide is observed in the similar mixtures kept in dark. These mixtures do not indicate any further photolysis or peptide formation even on exposure of Sun light in quartz flask.

Table No. 6

Exposure of Glutamic acid solution to light

Concentration of Glutamic acid — 0.5 g / 500 ml water

S.N.	Container	Source of light	Exposure time (hours)	Result of Chromatographic analysis.
1.	Pyrex	↑ 1000 Watt philips bulb	0 – 200	Glutamic acid,
			200 – 400 → 600	Glutamic acid, very faint diglutamic acid spot
2.	Quartz		0 – 200	Glutamic acid
			200 – 400 → 600.	Glutamic acid, diglutamic acid spot.
3.	(Pyrex and Quartz) wrapped with thick black cloth		0 – 600	Glutamic acid.
4.	Pyrex	↑ Sun light	0 – 200	Glutamic acid.
			200 – 400 → 600	Glutamic acid, faint spot diglutamic acid.
5.	Quartz	↓ light	0 – 200	Glutamic acid
			200 – 400	Glutamic acid, diglutamic acid, α-amino butyric acid, + Glycine.
			400 – 600	Glutamic acid, diglutamic acid, α-amino butyric acid, Glycyl-glycine, Gly-Glutamic acid
6.	(Pyrex and Quartz) wrapped with thick black cloth	③	0 – 600	Glutamic acid.

(3)

On exposure of sterilized aqueous solution of glutamic acid to artificial light diglutamic acid is formed both in the mixture kept in pyrex and quartz flasks and not in the one kept in dark. When Sun light is used as the source of irradiation the pyrex flask shows the formation of diglutamic acid only but the mixture kept in quartz flask indicates the formation of glycine, α-amino butyric acid and diglutamic acid on 400 hours exposure but further exposure of 200 hours forms of diglutamic acid, glycyl-glycine and glycyl-glutamic acid.

Table No. 17

Exposure of l-leucine solution to light.

Concentration of l-leucine — 0.5g/500ml.

S.N.	Container	Source of light	Exposure time (hours)	Result of Chromatographic analysis
1.	Pyrex	↑ 1000 watt philips bulb.	0 – 200	l-leucine
			200-400	l-leucine
			400-600	l-leucine, l-leucyl-l-leucine.
2.	Quartz	— " —	0 – 400	l-leucine
			400 – 600	l-leucine, l-leucyl-l-leucine.
3.	(Pyrex and Quartz) wrapped with thick black cloth.	↓	0 – 600	l-leucine.
4.	Pyrex	↑ Sun light	0 – 400	l-leucine
			400 – 600	l-leucine, dileucine.
5.	Quartz	— " —	0 – 400	l-leucine
			400 — 600	dileucine, few more spots which could not be identified.
6.	(Pyrex and Quartz) wrapped with thick black cloth	↓	0 – 600	l-leucine.

II

If l-leucine solution is irradiated with artificial light in pyrex flask for 600 hrs of exposure and no photolysis of amino acid takes place. No other reaction occurs if the solution is irradiated by sun light and in Quartz flask.

Table No. 18

Exposure of l-valine solution to light.

Concentration of l-valine — 0.2 g/500 ml.

S.Nr.	Container	Source of light	Exposure time (hours)	Result of chromatographic analysis
1.	Pyrex	1000 Watt philips bulb	0 - 300	l-valine
			300 - 600	l-valine, divaline.
2.	Quartz		0 - 300	l-valine
			300 - 600	l-valine, faint l-valyl-l-valine.
3.	(Pyrex and Quartz) wrapped with thick black cloth		0 - 600	l-valine, faint l-valyl-l-valine.
4.	Pyrex	sun light	0 - 300	l-valine.
			300 - 600	l-valine, faint l-valyl-l-valine
5.	Quartz		0 - 250	l-valine
			250 - 350	l-valine, divaline
			350 - 600	l-valine, divaline, glycine.
6.	(Pyrex and Quartz) wrapped with thick black cloth		0 - 600	l-valine.

* An aqueous solution of l-valine on irradiation with artificial light in Pyrex flask indicates the formation of l-valyl-l-valine in 600 hrs of exposure. If the same solution is exposed to sun light + in quartz flask l-valyl-l-valine appears in 350 hrs exposure and Glycine in 600 hrs of exposure.

Table No. 19

Exposure of Aspartic acid solution to light

Concentration of L-Aspartic acid — 0.2g/500ml.

S.N.	Containes	Source of light	Exposure time (hours)	Results of chromatographic analysis.
1.	Pyrex	↑ 1000 watt philips Bulb ↓	0 — 200	Aspartic acid.
			200 — 400	Aspartic acid, a faint spot
			400 — 600	aspartic acid, diaspartic acid,
2.	Quartz		0 — 200	aspartic acid.
			200 — 400	aspartic acid, Glycine
			400 — 600	aspartic acid, diaspartic acid, Glycine.
3.	(Pyrex and Quartz) wrapped with thick black cloth	—	0 — 600	Aspartic acid.
4.	Pyrex	—	0 — 400	Aspartic acid,
			400 — 600	Aspartic acid, diaspartic acid.
5.	Quartz	↑ Sun light ↓	0 — 300	Aspartic acid, two faint spots.
			300 — 400	Aspartic acid, diaspartic acid, faint spots
			400 — 600	— aspartic acid, diaspartic acid, Glycine & alanine faint spots.
6.	(Pyrex and Quart) wrapped with black cloth		0 — 600	Aspartic acid.

Table No. 20

Exposure of l-Histidine solution to light.
Concentration of l-Histidine — 0.2 g./500 ml Water

S.N.	Container	Source of light	Exposure time	Result of Chromatographic analysis
1.	Pyrex	1000 Watt Philips bulb.	0 — 100	Histidine, faint spots.
			100 — 200	Histidine, Glycine,
			200 — 300	Histidyl-Histidine, Histidine, Glycine.
			300 — 400	dihistidine, Glycyl-histidine
			400 — 600	~~Hist~~ Glycine, Histidine.
2.	Quartz		0 — 100	Histidine, few faint spots.
			100 — 200	Histidine, Glycine, Glycyl-l-histidine
			200 — 400	Hist., Gly, Gly-l-histidine
			400 — 600	Serine.
3.	(Pyrex and Quartz) wrapped with thick black cloth		0 — 600	Histidine
4.	Pyrex	Sun light	0 — 100	Histidine
			100 — 200	Histidine, dihistidine, Glycine
			200 — 600	Histidine, dihistidine, Glycine.
5.	Quartz		0 — 100	Histidine, few faint spots
			100 — 200	Histidine, Glycine, diglycine, dihistidine.
			200 — 300	Hist, Gly, diglycine, dihistidine, Serine,
			300 — 400	Hist, Gly, diglycine, ~~dihistidine~~ few dihistidine, Serine, faint spots.
			400 — 600	Hist, Gly, diglycine, dihistidine Serine, aspartic acid, few more spot.
6.	(Pyrex & Quartz) wrapped with thick black cloth		0 — 600	Histidine.

Table No. 21

Exposure of l-tyrosine solution to light.

Concentration of tyrosine — 0.2 g/500 ml.

S.No.	Container	Source of light	Exposure time (hours)	Result of chromatographic analysis
1.	Pyrex	↑ 1000 watt	0 – 100	Tyrosine,
			100 – 200	Tyrosine, faint spot of tyrosyl-tyrosine.
			200 – 400	
2.	Quartz	Philips bulb	0 – 100	Tyrosine,
			100 – 200	Tyrosine, tyrosyl-l-tyrosine.
			200 – 600	" " "
3.	(Pyrex & Quartz) wrapped with thick black cloth	↓	0 – 600	Tyrosine.
4.	Pyrex	↑	0 – 100	Tyrosine
			100 – 200	Tyrosine, faint spot of dityrosine
			200 – 600	
5.	Quartz	Sun light ↓	0 – 100	Tyrosine
			100 – 200	Tyrosine, Glycine.
			200 – 300	Tyrosine, Glycine, Glycyl-l-tyrosine,
			300 – 600	dityrosine.
6.	(Pyrex & Quartz) wrapped with thick black cloth	↓	0 – 600	Tyrosine.

(5)

A sterilised mixture of tyrosine and water on exposure to artificial light from 1000 watts electric bulb, tyrosyl-l-tyrosine is found in the pyrex flask mixture on 200 hrs of exposure while as the dark one does not show the spots of any of the amino acids or peptides. The when sunlight is used as the source of irradiation the mixture kept in pyrex flask shows the presence of only tyrosyl-l-tyrosine and on 200 hrs exposure but the mixture kept in quartz flask exhibits the presence of glycine on 200 hrs exposure, and glycyl-l-tyrosine glycyl-l-tyrosine & tyrosyl-l-tyrosine on 300 hrs of exposure.

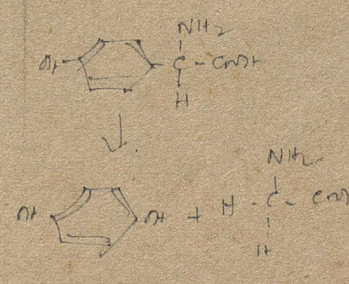

Table No. 22

Exposure of l-tryptophane solution to light

Concentration of l-tryptophane — 0.2 g./500 ml.

S.N.	Container	Source of light	Exposure time (hrs)	Result of chromatographic analysis
1.	Pyrex	↑ 1000 watt philips bulb ↓	0 - 100	Tryptophane, faint spots
			100 - 200	Tryptophane, alanine
			200 — 400 } 400 — 600 }	Tryptophane, dityptophane, alanine
2.	Quartz		0 - 100	Tryptophane, few faint spots
			100 - 200	Tryptophane, serine, alanine
			200 — 400 } 400 — 600 }	dityptophane, tryptophane, alanine
3.	Pyrex & Quartz wrapped with thick black cloth		0 — 600	Tryptophane
4.	Pyrex	— — — 2 cm ↑ light ↓	0 - 100	Tryptophane, faint spot
			100 - 200	tryptophane, alanine
			200 - 400 —	" " " , dityptophane
			400 — 600	" " " " "
5.	Quartz	— — —	0 - 100	Tryptophane, faint spots
			100 - 200	Tryptophane, alanine, aspartic acid
			200 - 300	Tryptophane, alanine, aspartic acid, Glycine, Glycyl-alanine,
			300 - 400	Tryptophane, ala, aspartic acid,
			〃	diglycine, Glycyl-alanine, dityptophane
6.	Pyrex and Quartz wrapped with thick black cloth		0 - 600	Tryptophane.

On irradiating an aqueous solution of ~~tryp~~ tryptophane to light for a 1000 watts bulb in Pyrex flask alanine is found in 200 hrs of expose, and dityptophane on 400 hrs expose. If this mixture is exposed to sunlight in Pyrex flask at 5 asp. an found on 200 hrs expose, glycine and alanine glycine for 300 hrs of expose and diglycine & dityptophane on 400 hrs of expose.

Table No. 23

colloidal V_2O_5

Exposure of glycine solution to light in presence of MoO_2 as Catalyst. The metallic ions from the solution were removed by desalting technique.

Concentration of glycine – 0.5 g/500 ml of water.

S.N.	Container	Source of light	Exposure time	Results of chromatographic analysis
1.	Pyrex	↑ 1000 watt philips bulb	0 – 100	Glycine
			100 – 200	Glycine, faint spot
			200 – 300	Glycine, faint spot.
			300 – 400	Glycine, diglycine.
			400 – 600	Gly, diglycine.
2.	Quartz	↓	0 – 100	Glycine
			100 – 150	Glycine, faint spot.
			150 – 250	Glycine, diglycine.
			250 – 600	
3.	(Pyrex and Quartz) wrapped with thick black cloth.	↓	0 – 600	Glycine.
4.	Pyrex	↑ sun light	0 – 100	Glycine
			100 – 200	Glycine, diglycine spot
			200 – 600	Glycine, diglycine spot and few very faint spots
5.	Quartz	↓	0 – 100	Glycine, very faint spots.
			100 – 200	Glycine, diglycine, few faint spots.
			200 – 400	Glycine, diglycine, triglycine, few more faint spots.
			400 – 500	Gly, diglycine, triglycine, alanine, Glycyl-alanine.
			500 – 600	Gly, ala, triglycine, diglycine, alanine alanyl-alanine.
6.	(Pyrex and Quartz) wrapped with thick black cloth.	↓	0 – 600	Glycine

Table No. 24

Exposure of glutamic acid solution to light in presence of colloidal molybdenum oxide and V_2O_5 oxides as catalyst. The solution was tested for peptides (chromatographically) after removing metallic ions by desalting technique.

Concentration of glutamic acid 0.5 g / 500 ml.

S.N.	Container	Source of light	Exposure time (hrs)	Results of Chromatographic analysis
1.	Pyrex	↑ 1000 watt	0 – 100	Glutamic acid
			100 – 200	Glutamic acid
			200 – 400	Glutamic acid, diglutamic acid, two faint spots which could not be identified.
			400 – 600	
2.	Quartz	Philips bulb.	0 – 100	Glutamic acid,
			100 – 200	Glutamic acid, two faint spots.
			200 – 400	Glutamic acid, Glutamyl-glutamic acid, α amino butyric acid.
			400 – 600	
3.	(Pyrex and Quartz) wrapped with thick black cloth	↓	0 – 600	Glutamic acid.
4.	Pyrex	↑ sun	0 – 100	Glutamic acid
			100 – 200	Glutamic acid, two faint spot.
			200 – 400	Glutamic acid, diglutamic acid
			400 – 600	very two faint spots which could not be identified.
5.	Quartz	light ↓	0 – 100	Glutamic acid
			100 – 200	Glutamic acid, two faint spots.
			200 – 300	Glutamic acid, Glycine, faint spots.
			300 – 400	Glutamic acid, Glycyl-glutamic acid, faint spots.
			400 – 500	Glu, Gly-Glu, Gly, α-amino butyric acid, faint spots.
			500 – 600	Glu, Gly, Gly-Glu, α-amino butyric acid and a faint spot.
6.	(Pyrex and Quartz) covered with thick black cloth.	↓	0 – 600	Glutamic acid.

Table No. 25

Exposure of l-aspartic acid to light in presence of colloidal $MoO + V_2O_5$. The solution was analysed chromatographically after removing metallic ions from the solution by desalting technique.

Concentration l-aspartic acid 0.2 g./500 ml.

S.N.	Container	Source of light	Exposure time	Results of chromatographic analysis.
1.	Pyrex	↑ 1000 watt philips	0 - 100	Aspartic acid.
			100 - 200	Aspartic acid, a faint spot.
			200 - 300 } 300 - 600 }	Aspartic acid, diaspartic acid.
2.	Quartz	bulb	0 - 100	Aspartic acid.
			100 - 200 } 200 - 600 }	Aspartic acid, diaspartic acid.
3.	(Pyrex and Quartz) covered with black cloth	↓	0 - 600	Aspartic acid.
4.	Pyrex	↑ sun light	0 - 100	Aspartic acid
			100 - 250 } 250 - 600 }	Aspartic acid, diaspartic acid.
5.	Quartz	↓	0 - 100	Aspartic acid
			100 - 200	Aspartic acid, diaspartic acid, Glycine
			200 - 400	Aspartic acid, diaspartic acid, Glycine, alanine
			400 - 600	Aspartic acid, diaspartic acid, Gly-alanine, Gly-aspartic acid.
6.	(Pyrex and Quartz) wrapped with thick black cloth	↓	0 - 600	Aspartic acid.

Table No. 26

Exposure of Valine solution to light in presence of colloidal MnO
The solution was desalted and analysed Chromatographically.
Concentration of l-Valine — 0.2g/500ml.

S.N.	Container	Source of light	Exposure time (hrs)	Results of Chromatographic analysis
1.	Pyrex	1000 watt philips bulb	0-100	Valine
			100-200	Valine, few faint spot.
			200-400 } 400-600 }	Valine, divaline
2.	Quartz		0-100	Valine
			100-200	Valine, a faint spot.
			200-400 } 400-600 }	Valine, divaline.
3.	(Pyrex and Quartz) wrapped with thick black cloth.		0-600	Valine.
4.	Pyrex	sun light	0-100	Valine
			100-200	Valine, divaline
			200-400 } 400-600 }	Valine, divaline
5.	Quartz		0-100	Valine
			100-200	Valine, glycine, divaline
			200-300	Valine, glycyl-l-valine, divaline
			300-400 } 400-600 }	Valine, glycyl-l-valine, divaline
6.	(Pyrex & Quartz) covered with thick black cloth.		0-100	Valine.

Table No. 27

Exposure of Histidine solution to light in presence of colloidal TiO_2 & V_2O_5

Concentration of Histidine 0.2g./500ml.

S.N.	Container	Source of light	Exposure time	Results of Chromatographic analysis.
1.	Pyrex	↑ 1000 Watt philips bulb	0 - 100	Histidine, few faint spots.
			100 - 200	Histidine, Glycine, Histidyl-Histidine
			200 - 300 } 300 - 600 }	Histidine, Glycine, dihistidine.
2.	Quartz		0 - 100	Histidine, Glycine, faint spots
			100 - 200 } 200 - 600 }	Histidine, Glycine, dihistidine, Glycyl-histidine.
3.	(Pyrex and Quartz) Covered with thick black cloth	↓	0 - 600	Histidine.
4.	Pyrex	↑ Sun light	0 - 100	Histidine, few faint spots.
			100 - 200	Histidine, dihistidine, glycine.
			200 - 600	Histidine, glycyl-histidine, dihistidine.
5.	Quartz		0 - 100	Histidine, Glycine, few faint spots
			100 - 200	Histidine, Gly-Histidine & Histidyl-histidine, serine.
			200 - 400	Hist., Gly., aspartic acid, Gly-histidine
			400 - 600	Histidine, Gly, aspartic acid, Gly-histidine Histidyl-histidine, serine.
6.	(Pyrex + Quartz) Covered with thick black cloth	↓	0 - 600	Histidine.

Table No. 28

Exposure of l alanine solution to light in presence of colloidal MoO and V_2O_5. The solution was desalted and then tested Chromatographically for peptides and amino acids.

Concentration of Alanine — 0.2 g/500 ml.

S.N.	Container	Source of light	Exposure time (hrs)	Results of Chromatographic analysis
1.	Pyrex	↑ 1000 watt	0 – 100	Alanine
			100 – 200	Alanine, a faint spot.
			200 – 400 } 400 – 600 }	Alanine, alanyl-alanine,
2.	Quartz	Philips bulb ↓	0 – 100	Alanine
			100 – 200	Alanine, faint spots.
			200 – 400 } 400 – 600 }	Alanyl-alanine, Alanine, a very faint spot could not be identified.
3.	(Pyrex and Quartz) wrapped with black cloth	↓	0 – 600	Alanine.
4.	Pyrex	↑ Sun light	0 – 100	Alanine
			100 – 200	Alanine, a faint spot
			200 – 400 } 400 – 600 }	Alanyl-alanine, Alanine
5.	Quartz	↓	0 – 100	Alanine, a very faint spot.
			100 – 200	Alanine, Alanyl-alanine
			200 – 600	Alanine, Alanyl-alanine Glycine, Glycyl-alanine.
6.	(Pyrex + Quartz) wrapped with thick black cloth	↓	0 – 600	Alanine.