REPORT ON THE INFLUENCE OF SPECIALLY TREATED LECITHIN (LIPIDIN) ON CELL PERMEABILITY

Conducted By
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Objective

To evaluate the effect of "Specially Treated Lecithin Formula of Avitech" on cell permeability and cellular absorption.

Principle

The MTT Assay is a colorimetric assay for assessing cell viability using the Tetrazolium dye MTT. When MTT is taken up by a living cell, dehydrogenase enzyme cleaves the Tetrazolium ring (which is present in the MTT) and forms a water insoluble, purple/dark blue coloured formazan within the cell. Live cells only can produce the enzyme (by the active mitochondria; an organelle present in the cytoplasm of the cell). Thus the amount of MTT cleaved is directly proportional to the number and permeability of viable cells present, which can be quantified by colorimetric methods.

Materials and Method

"Lecithin" and "Specially Treated Lecithin Formula of Avitech" were suspended in HBSS + Ethanol to have the concentration of 4mg/ml. From this, 50µl and 100µl were injected so that the concentration per well achieved would be 200µg and 400µg. The readings of this experiment were analysed to derive the effect of "Specially Treated Lecithin Formula of Avitech" on cell permeability and cellular absorption.

Results

Data (*Table 1*) indicated that the permeability of cells treated with Specially Treated Lecithin (STL) is significantly higher than both control cells and the cells treated with Lecithin. The cells treated with STL showed maximum absorbance value at both 200µg as well as 400µg concentration.

At 200µg (*Table 2*) concentration, the absorbance value of cells treated with STL (1.151) is

- 21.8% more than the cells treated with Lecithin (0.945)
- 52.6% more than the control cells (0.754)

At 400µg (*Table 2*) concentration, the absorbance value of cells treated with STL (1.345) is

- 48% more than the cells treated with Lecithin (0.908)
- 78% more than the control cells (0.754)

Data showed that with increase in concentration of Lecithin from 200µg to 400µg, the absorbance value/permeability decreased from 0.945 to 0.908 (i.e. 4% decrease). While in case of cells treated with STL, as the concentration increased from 200µg to 400µg, the absorbance value/permeability increased from 1.151 to 1.345 (i.e. 16.85% increase).

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Observations

Table 1:

Readings:													
	Injected Volume	Lecithin			Specially Treated Lecithin			HBSS + 4% Ethanol			4% Ethanol		
Lane		1	2	3	4	5	6	7	8	9	10	11	12
A	50µl	0.707	1.132	0.996	1.125	1.422	0.907	0.962	1.141	1.015	0.593	0.643	0.618
B	100µl	0.777	0.979	0.969	1.246	1.635	1.181	0.746	0.871	1.159	0.659	0.459	0.515
C	Cell Control (Vero Cells)												
		0.579	0.875	0.793	0.77								

Table 2:

Lane	Description/Composition	Injected Volume (in µl)	Concentration/ well	Absorbance Mean
A1, A2, A3	Lecithin	50µl	200µg	0.945
B1, B2, B3	Lecithin	100µl	400µg	0.908
A4, A5, A6	Specially Treated Lecithin	50µl	200µg	1.151
B4, B5, B6	Specially Treated Lecithin	100µl	400µg	1.345
C	Cell Control (cells only)	cells only		0.754

Conclusion

The trial validates the hypothesis that Specially Treated Lecithin as incorporated in LIPIDIN increases cell permeability.

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Summary

In the experiment conducted at Tamil Nadu Veterinary and Animal Sciences University (Chennai) to evaluate the effect of "Specially treated Lecithin" on cell permeability and cellular absorption, Lecithin and Specially Treated Lecithin included in LIPIDIN of Avitech Nutrition Pvt. Ltd. were assayed and analysed. The experiment shows that Specially Treated Lecithin as incorporated in LIPIDIN increases cell permeability.

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