

PHOTOSYNTHESIS PART III: ATP SYNTHESIS

Equivalent to 4 hours of classes

Course: Plant Physiology and Biochemistry (M.Sc)

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➤ **Oxidative phosphorylation and photophosphorylation**

➤ **History of discovery of how Proton gradients is utilized for ATP synthesis.**

- Boyers conformational model,
- Racker's experiment,
- Jagendorf's experiment;

- **Chemiosmotic Model**
- **Coupling of electron transfer and ATP synthesis in Chloroplast and mitochondria.**
- **Role of uncouplers.**

- **ATP synthase and description of its domains**
- **Detailed study of catalytic mechanism of ATP synthase**

Role of Proton-Motive Force Energizes Active Transport

Localization of PSI, PSII, Cytb6f and ATP synthase in thylakoid membranes and its implication.

- **Photochemical and Non photochemical quenching**
- **Photoinhibition**
- **Repair and regulation of the photosynthetic machinery**

All the contents have figures copied from books , research articles and various websites. Therefore, due to copyright issue the detailed slides can not be uploaded. I request all the M.Sc students to check your mail for the detailed slides.

SUGGESTED READINGS:

- Taiz L and Zeiger E. (2017) Plant Physiology, 4th Edition, Sinauer Associates Inc. Publishers, Massachusetts, USA.
- Nelson DL and Cox MM. (2004) Lehninger Principles of Biochemistry, 4th Edition, W.H. Freeman and Company, New York, USA.