

# Changes of the Photosynthetic Apparatus in *Spirulina* Cyanobacterium by Sodium Stress

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*Spirulina platensis* trichomes grown in Zarrouks medium having total Na<sup>+</sup> concentration as 0.14 M when transferred to fresh Zarrouks medium containing enhanced level of Na<sup>+</sup> ions equal to 0.86 M showed 30% more accumulation of Na<sup>+</sup> intracellularly as compared to the control. An inhibition of photosystem II activity to almost 66% was observed. Also due to this exposure to high Na<sup>+</sup>, the room temperature absorption characteristics of *Spirulina* trichomes and the thylakoid membrane preparations were altered indicating changes in the chromophore protein interactions and alterations in the phycocyanin/allophycocyanin ratio; thereby affecting the energy harvest and energy transfer processes. An increase in the carotenoid absorption was two fold over the control in the treated sample. Similarly, room temperature and low temperature (77 K) fluorescence emission spectra collectively suggested alterations in the chlorophyll *a* emissions, F 726 of photosystem I reflecting changes in the lipid protein environment of the thylakoid. Our results indicate that in *Spirulina* the enhanced Na<sup>+</sup> level alters the energy harvest and transfer processes. It also affected the emission characteristics of chlorophyll *a* of photosystem I.