B207 Influence of Light Regime on NRA and Ion and Organic Solute Composition of 4 Sedges (*Carex* spp.)

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Many researchers have investigated growth, photosynthetic rates, economics, and nitrogen in the sun-shade response, but there are few studies on the patterns of inorganic and organic solutes in connection with light-induced nitrate metabolism in the sun-shade response.

In the present study, 4 *Carex* species were selected to examine nitrate reductase activity (NRA) and solute patterns according to different light regimes (1.9, 16.0, 91.5 Wm^{-2}). One of these species, *C. pilosa,* is known as a shade-adapted species and the others as half (*C. gracilis*) to full (*C. rostrata* and *C. distans*) light-adapted species. Besides measuring *in vivo* NRA, we also quantified water-soluble inorganic ions, organic acids, low molecular weight carbohydrates, amino acids and total N (% DW).

Compared to species adapted to high light intensity, shade-adapted *C. pilosa* showed reduced productivity under the highest light intensity. In general, nitrate and amino acid levels decreased at higher light intensity, while sugar and organic acid concentrations increased. *C. pilosa* tended to rising osmolarity with increasing light intensity, while in the other species it tended to fall. Under low light intensity, the drop in soluble carbohydrate contents is osmotically compensated by an enhanced nitrate concentration. The patterns of ionic changes due to increasing light intensities were essentially same in all selected species, indicating quite similar characteristics of their mineral ion and organic acid metabolism.

Consequently, competition between nitrate and CO_2 reduction for reductants and ATP from photosynthesis may have important ecological consequence for the adaptation of plants to low or high light condition. In addition, differences in photosynthetic characteristics can be expected to be very important for growth and survival in the respective habitats.

B208 The diatoms of sediment samples from the equatorial Pacific

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As a part of the US Joint Global Ocean Flux Studies (US JGOFS) TT013 cruise, the diatoms of the equatorial Pacific sediments were studied. There were no clearly dominant diatom species from all the latitudes (from 12°S to 9°N) in permanent mounts of our surface sediment samples. The relative abundances of diatoms at each latitude differed strikingly from the planktonic net sampels (Lee and Fryxell, 1996). The most common diatoms in sediment samples were highly silicified and thick silica walled species, such as *Thalasionema* spp., *Rhizosolenia* spp., *Pseudoeunotia doliolus*, and *Alveus marinus*. The species composition of diatoms in sediment samples of the equatorial Pacific in this study shows similarities to the subtropical diatom complex of Jouse *et al.* (1971).