Some Aspects to the in vivo NRA in Carex Species.

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Up to now, there have been done much efforts in regard to NRA of dicotyledonous herbs and important monocot crops, but few to wild plants having canopy structure such as Carex. Thus, it was interesting to study the NRAs in some monocots in more detail. 5 Carex species were selected, which are native to acid–oligotrophic (Carex rostrata), meso-eutrophic flysh (Carex pilosa), meso-eutrophic saline (Carex distans), and eutrophic (Carex acutiformis, Carex gracilis), habitats. The objectives of the present study are to determine: a) the optimum conditions of in vivo NRA assay for leaf samples of Carex species, b) changes of NRA according to section within leaf and leaf ages, c) diurnal variations. NRA of Carex rostrata is readily saturated at lower substrate concentration than those of Carex distans and Carex gracilis. All Carex species investigated showed higher NRA in leaves than in roots, and maximal values at the middle section of each leaf and in youngest fully expanded leaves. Compared to Carex gracilis, NR in leaves of Carex distans was adapted readily to the light period. On the whole, Carex showed rather delayed diurnal variation. In vivo NRA assay serves as a useful tool to find out relative differences in varying environmental conditions, and also is helpful to understand nitrate reduction and basic nitrogen metabolism of plants having different canopy structure like genus Carex. However, for a correct application of the in vivo NRA test and hence a full understanding of N assimilation processes on natural habitats, a series of factors including N forms, light, temperature, canopy structure, and their interactions have to be taken into account.

Disassembly of Chloroplast during Senescence of Detached Leaves in Zea mays

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Structural changes of chloroplastic during senescence of detached leaves in Zea mays were investigated by measuring the disassembly of chlorophyll–protein complexes in detached leaves which had been kept in the dark for 7 days. The loss of chlorophyll induced degradation of chlorophyll–protein complexes in the senescing detached leaves. During dark-induced senescence. The amount of PSI complex containing LHCl apoprotein was slightly decreased until 5 day and rapidly decreased thereafter. Disassembly of RC-Core2 was delayed in the late stage of leaf senescence compared to the other chlorophyll–protein complexes. As gradual disassembly of trimeric LHClII progressed after the middle stage of senescence, there was a steady increase in the relative amount of SC-2 containing LHClII monomer. On the other hand, exogeneous applications of BA had a little effect in protecting disassembly of chlorophyll–protein complexes, particularly PSI complex, LHClII and SC-1 during the late stage of leaf senescence compared to the control. These results suggest, therefore, that BA gives rise to the stability of chlorophyll–protein complexes in the late stage of dark-induced senescence.