

Turkish Journal of Botany

Turkish Journal

of
Botany

Influence of the Inorganic Carbon Addition on Photosynthesis of Algae and Some Macrophytes

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Abstract: A two-step experiment was conducted in order to understand whether natural algal communities (fish-pond water) and selected macrophytes (*Potamogeton pectinatus* L. *Elodea nuttallii* (Planch.) St.John. and *Utricularia* L. sp.) + algae were limited by lack of inorganic carbon (IC). First, 0.6 ml 1 M KHCO_3^- was added to the water of Vajgar and Ratmirovsky ponds, South Bohemia, and incubated for 180 minutes under $125 \mu\text{E m}^{-2} \text{s}^{-1}$ light. Then light intensity was increased to $150 \mu\text{E m}^{-2} \text{s}^{-1}$ and 0.6 ml 1 M KHCO_3^- was added to selected macrophytes + Vajgar pond waters and incubated for 50 and 180 minutes. Initial and final pH, alkalinity and dissolved oxygen were measured and oxygen production was calculated. The results show that neither algae nor algae + experimental plants were limited by the lack of inorganic carbon. Adding KHCO_3^- did not cause a considerable increase in oxygen production. As an exception, *Utricularia* L. sp. was the only macrophyte which increased oxygen production after adding KHCO_3^- .

Key Words: KHCO_3^- uptake, algal photosynthesis, pH, alkalinity, oxygen production, fish-pond

Turk. J. Bot., **26**, (2002), 395-401.

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