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Evaluating the relationship between leaf nitrogen concentration and chlorophyll content in five oak species

Ahmed Hussein and Rose-Marie Muzika

Relationships between total leaf nitrogen concentration and chlorophyll values of bur oak (*Quercus macrocarpa*), pin oak (*Q. palustris*), northern red oak (*Q. rubra*), shumard oak (*Q. shumardii*), and swamp white oak (*Q. bicolor*) were determined. These values were evaluated under both standard and inundated watering conditions. Each tree species was represented by seedlings raised from acorns collected from both upland and lowland sites with the exception of northern red oak, which was represented by seedlings from a single location. Chlorophyll readings were taken on a total of 135 individual seedlings for five consecutive weeks using Minolta SPAD-502 meter. A single leaf was repeatedly sampled on each seedling in each flooded and non-flooded (control) treatment over five replications in a greenhouse. The trees were flooded for 0, 3 and 5 weeks. A close correlation between chlorophyll content and leaf nitrogen over different stress levels is expected as the end result.