

Nutritional use efficiency of *Euphorbia hirta* (C₄) and *Euphorbia heterophylla* (C₃) Species

Most C₄ species are among the world's most important perennial weeds. The C₄ photosynthetic pathway generally enables C₄ species to grow rapidly and make efficient use of water and nutrients especially in warm environments. However there are some weed species, which have very high growth rates, but having C₃ photosynthetic pathway. In the present study, 2 plant species were selected from the same family Euphorbiaceae but one is a C₄ plant (*Euphorbia heterophylla*). The C₃ plant has a higher dry matter content than the selected C₄ plant in the field. Therefore, the nutritional use efficiency of both species in pure and mixed stands was compared under four different nutrient conditions, including complete N, P and K nutrients, N deficient, P deficient and K deficient conditions and those treatments with supplying H₂O and H₂O stressed conditions.

Although the selected C₃ plant has a higher dry matter weight and higher growth rate than that in C₄ absorption capacity of N, P and K was significantly higher in the C₄ species lower % of dry matter weight differences were seen between those 2 water treatments. Thus it indicates that both nutritional and H₂O use efficiency is higher in *E. hirta* (C₄) species than *E. heterophylla* (C₃) species. But it shows very wide variations under different nutrient conditions and water treatments. Therefore, it is rather difficult to draw a valid conclusion, and further investigations are required.