Effects of drought stress on the growth, biomass partitioning and chlorophyll fluorescence of *Commelina communis* L.

Muhammad Haroon and Xiangju Li

Abstract: *C. communis* L. is one of the serious broad leaf weed of many crops. Greenhouse based experiment was carried out to determine the growth, biomass partitioning and chlorophyll fluorescence of *C. communis* L. in response to drought stress. The drought stress treatments were 80, 60, 40 and 20% field capacity. The results revealed that when *C. communis* L. were grown under different drought stress condition, maximum plant height and biomass were recorded at 80 and 60% as compared to 20 and 40% field capacity (FC). However, with increasing the drought stress, plant height, number of leaves, shoot biomass, leaves biomass, root biomass, total plant biomass and shoot mass ratio were decreased sharply. In addition, a considerable increased were found in root mass ratio and root to shoot ratio at 20 and 40% field capacity. Similarly, drought stress 20 and 40% (FC) also influences the photosystem II (PSII) reaction center of *C. communis* L. and decline trend was observed in Fm′, Fv/Fm, ΦPSII, qN and qP as increase trend was observed in Fo′. The present study explained the survival mechanism of *C. communis* L. under various different drought stress conditions and therefore provides a theoretical background for the protection of *C. communis* L. population.

Keyword: Biomass partitioning, *C. communis* L., chlorophyll fluorescence and drought stress.