Assessment of Variability in Nitrogen, Chlorophyll and Free Proline Content in Half Sib Progenies of *Casuarina* Species in Peninsular India

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Abstract

The objective of this study was to investigate total nitrogen, chlorophyll "a", "b" and "total" content at in 12 months old progeny. Casuarina species planted in Agricultural Research Station in Gangavati with seeds received from Australia during 1999. The total nitrogen content was significantly higher in *Casuarina equisetifolia* (26.30 %) followed by *C. glauca* (23.77 %) and lower in both of *C. obesa* (19.99 %) and *C. cristata* (20.91 %). *C. equisetifolia* had maximum root nodulation and nitrogen fixing ability. *C. glauca* and *C. cunninghamiana* were recorded on par with each other for total nitrogen content. Furthur the study revealed that chlorophyll total (0.40 µg/g) and chlorophyll "b" (0.11 µg/g) content were significantly higher in *C. equisetifolia* and lower in both *C. obesa* and *C. cristata*. Similarly, chlorophyll "a" content was higher in *C. cunninghamiana* (0.09 µg/g) and lower in both species of *C. equisetifolia* and *C. obesa*. Chlorophyll has a precise role in the photosynthesis activties, and it is also debated as having profound effect on growth and biomass productivity in various species. *C. cunninghamiana* (28.99 µg/g) followed by *C. glauca* (26.04 µg/g) and *C. equisetifolia* (25.17 µg/g) had high free proline content inferred as tolerant to drought and saline agro ecosystem condition when compared to *C. cristata* (15.99 µg/g) and *C. obesa* (16.05 µg/g).