

## **Evaluating the role of *Casuarina equisetifolia* plantation as carbon sinks**

Uma, M., K. Rajendran\* and T.S.Saravanan

*PG and Research Department of Botany*

*Thiagarajar College*

*Kamarajar Salai, Madurai 625 009, Tamil Nadu, India*

*\*Email : kuppurajendran@rediffmail.com*

### **Abstract**

Trees are vital to fight against global warming, because they absorb and store the key greenhouse gases before they reach the atmosphere. While all living plants absorb CO<sub>2</sub> as part of photosynthesis, trees absorb more due to their size and extensive root structure. Hence, planting trees in agro and farm forestry was one of the most important options.

*Casuarina* (*Casuarina equisetifolia* Forst.) is commonly used for wasteland development and suitable for farm forestry and agro forestry plantation, due to its ability to form symbiotic nitrogen fixation. Field experiment was conducted to study the growth, productivity and carbon accumulation of *Casuarina equisetifolia* Forst. in the farm forestry in east coast district of Pudukkottai in Tamil Nadu. At the tree plantation level, performed better in third year plantation for diameter, height, above ground biomass, below ground biomass and total biomass and carbon sequestration estimations. Regression model (DBH based model) was used to estimate biomass and carbon sequestration of this plantation. Total biomass of 20.129 kg/tree and with an average total biomass carbon of 8.452 kg/tree was recorded. In general, biomass allocation and sequester carbon in tissue types, the stem shared maximum amount followed by needle and branch & twig. Information on carbon allocation in *Casuarina equisetifolia* farm forestry plantation in this region is quite meager. In future carbon accumulation in *Casuarina* will find ways to efficiently manage the biosphere as sustainable carbon storage in farm forestry.