

Identification of Cinnomoyl CoA Reductase (CCR) Gene in *Casuarina equisetifolia*

A. Shanthi*, B. Vikashini, Blessan Santhosh George and Modhumita Dasgupta

Institute of Forest Genetics and Tree Breeding

Coimbatore 641 002, Tamil Nadu, India

**Email: shanthia@icfre.org*

Abstract

Wood is primarily composed of lignin, cellulose, and non-cellulosic polysaccharides which associate to form a complex structure that is distinctive to woody perennials. Wood properties influence pulp and paper quality and are directly related to the cellulose, hemicellulose and lignin content. In the recent years, several research groups have worked on identification of lignin biosynthetic genes in tree species like *Populus*, *Eucalyptus*, *Betula* and *Acacia*. Cinnomoyl CoA Reductase (CCR) is the key gene involved in the first step of the phenylpropanoid pathway specifically dedicated to the monolignol biosynthetic branch. The present study aimed at isolating the truncated CCR gene from *Casuarina equisetifolia*. Primer pairs targeting the conserved domain was designed from their orthologs from *Populus*, *Betula*, *Hevea* and *Leucaena* and amplified in the genomic DNA of *C. equisetifolia*. An amplicon of 850 bp was cloned and sequenced. Sequence analysis revealed significant similarity to CCR orthologs from other tree species. The sequence was deposited to GenBank with Accession No. JQ982980. This is the first report on CCR gene from this species and the study will form the basis towards initiating genomic research to understand wood formation in *C. equisetifolia*.