THE RIBOSOMAL RNA GENES AND OTHER REPEATED SEQUENCES FROM PINUS RADIATA

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Genes for the 18S and 25S ribosomal RNAs and the 5S RNA have been isolated from a Pinus radiata genomic library. The organization and quantitative variation of these genes have been determined in a series of individual trees. For the 18S and 25S repeat unit, polymorphisms appear between individuals for both the number of genes and their organization. The number of genes in this species can be much lower than that found in angiosperms despite their much larger genomes. However, the repeat unit appears to be much longer, but without a repetitious region in the intergenic region. In situ hybridization has demonstrated that these genes are present on a large number of chromosomes. The organization of the 5S RNA genes appear to be similar to that observed in angiosperms except that again there appear to be fewer copies of this gene family, and these are dispersed over a number of chromosomes. Twenty repetitive sequences have been cloned from the P. radiata genome and used to look for polymorphisms. Unlike the rDNA, these sequences were all from dispersed families and gave no useful quantitative or qualitative markers.