

**P01      Molecular Cloning of a Partial Cadinane Synthase Gene from  
                 *Artemisia annua***

**Seung-hwan Song\*, Yung-jin Chang, Jeong-gu Kim and Soo-Un Kim**  
Division of Applied Biology and Chemistry, College of Agriculture and  
Life Sciences, Seoul National University, Suwon 441-744, Korea

*Artemisia annua*, an indigenous plant in Korea, contains a clinically important potent antimalarial principle, artemisinin. Artemisinin is a cadinane-type sesquiterpene endoperoxide. Cadinane synthase catalyzes the first committed step in artemisinin biosynthesis by cyclizing farnesyldiphosphate. In hopes of finding a cadinane synthase gene involved in artemisinin biosynthesis, oligonucleotides were synthesized on the basis of the consensus nucleotide sequences and *Nco* I restriction sites for convenience in cloning. Specifically, nucleotide sequences of two highly conserved regions were deduced from the genes of similar function of *Hyoscyamus muticus*, *Nicotiana tabacum*, *Abies grandis*, *Lycopersicon esculentum*, and *Gossypium hirsutum* to construct a set of primers for polymerase chain reaction (PCR). A 184 bp fragment was found to be amplified by PCR, and subsequently cloned. The gene revealed 62.8% identity in nucleotide and 55.6% in amino acid sequence to correspondent gene of *N. tabacum*. The gene was different from another sesquiterpene cyclase gene of *A. annua*, germacradiene synthase gene, recently reported by Mercke and Bordelius (1998).