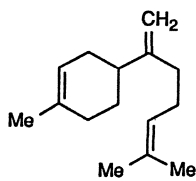
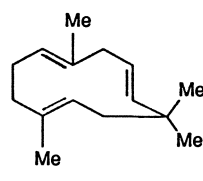
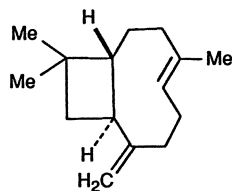
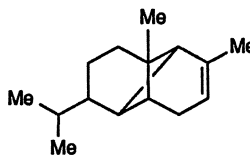
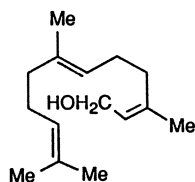
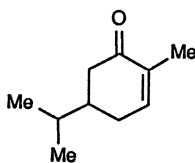
 β -Farnesene (12-27) β -Bisabolene (12-28) α -Humulene (12-29) β -Caryophyllene (12-30) α -Copaene (12-31)

12.2.2 Chemical Constituents of *Alpinia katsumadai*

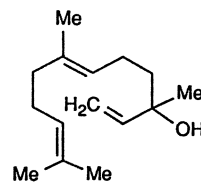
Saiki et al. reported that steam distillation of the seeds of *A. katsumadai* gave a 1.5% yield of an essential oil from which three main components were identified: cineole, α -humulene, and farnesol (12-32). Eight other compounds, identified as linalool, camphor, carvotanacetone (12-33), bornyl acetate, geranyl acetate, methyl cinnamate, and nerolidol (12-34) were also detected. Some other unidentified components, detected using combined gas chromatography-mass spectrometry, were presumed to be either sesquiterpene alcohols or monoterpenes [4]. These results differ from those of Lawrence et al. [5] who reported that camphor and bornyl acetate were the major components of the essential oil of *A. katsumadai*.



Farnesol (12-32)



Carvotanacetone (12-33)



Nerolidol (12-34)

In addition, a number of new and known diarylheptanoids: 1,7-diphenyl-5-hydroxy-6-hepten-3-one (12-35); 1,7-diphenyl-3,5-dihydroxy-1-heptene; 1,7-diphenyl-5-hydroxy-1-heptene; 1,7-diphenyl-5-hydroxy-4,6-heptadien-3-one (12-36); 3,5-dihydroxy-1,7-diphenylheptane; and 1,7-diphenyl-4,6-heptadien-3-one; the flavanones alpinetin (12-37) and pinocembrin (12-38); and the chalcone cardamonin (12-39) were isolated from the seeds of *A. katsumadai*, together with farnesol and cinnamaldehyde [6].