Four diterpenoids, ferruginol, salvipisone, aethiopinone and 1-oxoaethiopinone, were isolated from transformed roots of Salvia sclarea. Salvipisone and aethiopinone showed relatively high cytotoxicity against HL-60 and NALM-6 leukemia cells ($IC_{50}$ range $0.6-7.7 \mu g/mL$ which is equal to $2.0-24.7 \mu m$), whereas 1-oxoaethiopinone and ferruginol were less active in this regard. Moreover, we have found that all four diterpenoids of S. sclarea had equal cytotoxic activity against parental HL-60 and multidrug-resistant HL-60 ADR cells, what indicates that they are poor substrates for transport by multidrug resistance-associated protein (MRP1). Caspase-3 activity determinations showed that salvipisone and aethiopinone were able to induce apoptosis in a time- and concentration-dependent manner. The results obtained in this study show that S. sclarea diterpenoids aethiopinone and salvipisone may be useful in the treatment of human cancers, especially in the case of drug resistance.

Key words: Diterpenoids, Cytotoxicity, Leukemia Cells