Terpinen-4-ol is a monoterpene originally found in many plants and is one of the primary active ingredients in tea tree oil. Terpinen-4-ol exhibits anticancer chemotherapeutic, anti-inflammatory, antibacterial, and antifungal activities. In leukemia cells, terpinen-4-ol induces release of cytochrome c and activation of caspase 8, resulting in autophagy, apoptosis, and cell death. In non-small cell lung cancer (NSCLC) cells, terpinen-4-ol induces cleavage of poly(ADP)-ribose polymerase (PARP), activates caspases 3 and 9, decreases mitochondrial membrane potential, increases the Bax/Bcl-2 ratio, and increases levels of p53, resulting in apoptosis and cell death. Additionally, this compound decreases myeloperoxidase activity and expression of MIP-2 and other cytokines in animal models of oral candidiasis. Terpinen-4-ol displays antimicrobial activity against gram positive and gram negative bacteria such as Campylobacter as well as fungi such as Aspergillus and Fusarium.

References


