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Synthesis of new oxygen and nitrogenous terpenoid derivativesby chemoenzymatic methods.

Terpenes are a structurally diverse and widely distributed family of natural products containing well over 25,000 defined compounds identified from all kingdoms of life.
The nomenclature of terpenes depends on the number of isoprene structures and can be classified as monoterpene, sesquiterpene, diterpene, triterpene, tetraterpene, and polyterpene. The terpenoids possess acyclic or cyclic structures, which result from changes of isoprenoid chain reactions as reductions, oxidations, cyclizations, ring breaks, or rearrangements. Because the monoterpenes enantiomers are common in many plant species, and are used in cosmetic, non-cosmetic, and pharmaceutical preparations, as well as in the food industry, it is interesting and important to know the effects and the enantioselectivity of the convulsion receptors in relation to these monoterpenes. Chiral recognition by receptors and enzymes is well demonstrated in biochemical, pharmaceutical and chemosensory research.

Stereochemistry has an amazing effect on the odor compounds. That's the reason for some of the compounds have intense odors, while others do not have it at all. Monoterpenes, as well as the sesquiterpenes and diterpenes, are secondary metabolites because they are classified as nonessential for viability; however, they mediate important interactions between plants and their environment. Studies have shown that monoterpenes have various pharmacological properties including antifungal, antibacterial, antioxidant, anticancer, and anti-spasmodic.

The work was devoted to antimicrobial studies of new terpenoid derivatives by the disc diffusion method. The influence of these compounds on the growth of such microorganisms as: *Aspergillus niger, Aspergillus fumigatus and Escherichia coli* was analyzed. The results of microbiological tests may be helpful in selecting the appropriate substance with the characteristics of a chemotherapeutic agent with optimal activity.