ENANTIOCONTROLLED SYNTHESIS OF NATURAL PRODUCTS UTILIZING HETEROCYCLES

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Some natural products containing a tertiary methyl group at the chiral center have been synthesized enantioselectively from the common glycerol derivative ((R)-1) via heterocyclic intermediates. This approach involves an efficient conversion of the one enantiomer ((R)-1) into the alternative one ((S)-1) via the transient heterocycle (2). Chirality transfer of the each glycerol into the target molecules is accomplished via the corresponding epoxide (3) in an efficient manner allowing novel syntheses of the aggregation pheromone of Gnathotrichus sulcatus (+)-and (-)-sulcatol, (4) the bisabolane type sesquiterpenes (+)-α-curcumene (5), (+)-nuciferal (6), (+)-nuciferol (7), a marine steroid 20β-H cholanic acid (8), and a vitamin D metabolite desmosterol (9).