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SYNTHESIS AND ABSOLUTE CONFIGURATION OF (-)-PENTALENOLACTONE E METHYL ESTER⁺

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Abstract -- The naturally occurring enantiomer of pentalenolactone E was synthesized as its levorotatory Me ester 1 starting from (+)-2-ethoxycarbonyl-7,7-ethylenedioxy-bicyclo[3.3,0]octan-3-one 3, which was obtained by treating (\pm)-3 with baker's yeast. The absolute configuration of pentalenolactone E Me ester was established as depicted in 1.

Pentalenolactone E, isolated as its Me ester 1 from cultures of <u>Streptomyces</u> UC 5319, is a sesquiterpene antibiotic with a unique tricyclic ring system.¹ Although there exist six published syntheses of $(\pm)-1$,²⁻⁷ no enantioselective synthesis of the optically active form of 1 has been reported. We became interested in synthesizing the optically active pentalenolactone E Me ester to confirm the stereostructure as depicted in 1, which was proposed in analogy with the established stereostructures of other microbial metabolites related to 1.¹



Fig.1. Synthetic plan of (-)-pentalenolactone E Me ester.

⁺Synthesis of mono- and sesquiterpenoids -- 11. Part 10, K. Mori and H. Tamura, <u>Liebigs Ann. Chem.</u> in the press. ⁺⁺Present address: Central Research Laboratory, Nisshin Flour Milling Co., Ltd., Oimachi, Saitama 354, Japan.