

Synthesis of the Natural Product (\pm)-Dictyopterene B

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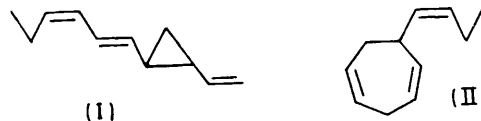
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Summary The preparation of dictyopterene B (I) is described.

THE essential oil of *Dictyopteris* contains a variety of unsaturated C_{11} hydrocarbons. Dictyopterene A,¹ an odoriferous cyclopropyl derivative, has been synthesized by several groups.²⁻⁴ Recently, the related dictyopterene B (I) was formulated as *trans*-1-(*trans,cis*-hexa-1',3'-dienyl)-2-vinylcyclopropane.⁵ We now report a synthetic route to this compound.

Hydrogenation of pent-2-yn-1-ol⁶ over Lindlar catalyst yielded *cis*-pent-2-en-1-ol (b.p. 74°/49 mm);⁷ stirring with phosphorus tribromide in the dark gave *cis*-1-bromopent-2-ene (b.p. 72°/120 mm). The addition of triphenylphosphine bromide furnished *cis*-pent-2-enyltriphenylphosphonium bromide (m.p. 158°); treatment with *n*-butyl-lithium, followed by *cis,trans*-2-vinylcyclopropylaldehyde² afforded a liquid, *cis,trans*-(I), (b.p. 62°/0.3 mm). The product had a u.v. maximum at 246 nm, and an n.m.r. spectrum in

agreement with the literature data. On heating, the *cis*-component smoothly rearranged into 6-(*cis*-but-1'-enyl)-cyclohepta-1,4-diene (II). The latter structure has been assigned to the male-attracting substance produced by the female gametes of the brown alga *Ectocarpus siliculosus*.⁸ If correct, then the sequence elaborated here is a path to this natural product, also.



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