

(100 MHz) δ 137.3, 136.8, 79.3, 72.4, 50.6, 46.5, 42.1, 40.3; ^1H NMR (400 MHz) δ 6.32 (dd, $J = 5.6, 3.1, 1\text{ H}$), 6.15 (dd, $J = 5.6, 3.1, 1\text{ H}$), 3.85 (d, $J = 12.5, 1\text{ H}$), 3.73 (d, $J = 12.5, 1\text{ H}$), 3.24 (br s, 1 H), 2.92 (br s, 1 H), 2.21 (br s, 1 H, hydroxyl), 1.92 (dd, $J = 13.6, 3.5, 1\text{ H}$), 1.72 (dd, $J = 13.6, 3.4, 1\text{ H}$), 1.55 (m, 1 H), 1.48 (d, $J = 9.3, 1\text{ H}$); EIMS m/z 202 (M^+); HREIMS (M^+) calcd for $\text{C}_8\text{H}_{17}\text{BrO}$ 201.9994, found 202.0000.

(1*S*,2*S*,4*R*)-2-Bromobicyclo[2.2.1]heptane-2-methanol (5). To olefin 4 (3.43 g, 15.6 mmol) in EtOAc (100 mL) was added 10% Pd/C (200 mg), and a hydrogen atmosphere was secured. After being stirred for 4 h, the reaction mixture was filtered through a bed of silica gel and concentrated to yield alcohol 5 as a white solid (3.41 g, 99%): mp 39–41 °C; $[\alpha]_{\text{D}}^{25} = +47^\circ$ ($c = 1.78, \text{CHCl}_3$); IR (KBr) 3336, 2963, 1064 cm^{-1} ; ^{13}C NMR (100 MHz) δ 82.5, 71.4, 45.8, 45.2, 36.7, 36.5, 28.7, 28.1; ^1H NMR (300 MHz) δ 3.56 (ab, $J = 12.5, \Delta\nu = 8.6, 2\text{ H}$), 2.58 (br s, 1 H), 2.33 (br s, 1 H), 2.17–2.03 (m, 2 H), 1.92–1.77 (m, 2 H), 1.66–1.62 (m, 2 H), 1.50–1.16 (m, 3 H); CIMS m/z 222 ($\text{M}^+ + \text{NH}_4$); HRCIMS ($\text{M}^+ + \text{NH}_4$) calcd for $\text{C}_8\text{H}_{17}\text{BrNO}$ 222.0494, found 222.0475.

(1*S*,2*S*,4*R*)-Spiro[bicyclo[2.2.1]heptane-2,2'-oxirane] (6).⁷ The bromo alcohol 5 (2.98 g, 13.4 mmol) was dissolved in methanol (25 mL) and treated with CH_3ONa (3.62 g, 67.0 mmol). The suspension was stirred for 4 h and then quenched by the addition of saturated aqueous NH_4Cl (75 mL) and extracted with ether (3 \times 50 mL). The combined organic extracts were washed with brine (4 \times 25 mL), dried over MgSO_4 , and concentrated to afford quantitatively the crude epoxide which purified by chromatography (6:1 pentane–ether) to yield the volatile epoxide 6 as colorless oil (1.65 g, 99%): $[\alpha]_{\text{D}}^{25} = +58^\circ$ ($c = 0.97, \text{CHCl}_3$); IR

(neat, NaCl) 2955, 2871, 1060 cm^{-1} ; ^{13}C NMR (100 MHz) δ 66.6, 50.4, 43.0, 38.4, 37.5, 36.5, 27.8, 24.8; ^1H NMR (400 MHz) δ 2.77 (d, $J = 4.7, 1\text{ H}$), 2.73 (d, $J = 4.7, 1\text{ H}$), 2.37 (br s, 1 H), 1.74 (d, $J = 2.1, 1\text{ H}$), 1.74–1.47 (m, 5 H), 1.34–1.11 (m, 3 H); EIMS m/z 124 (M^+); HREIMS (M^+) calcd for $\text{C}_8\text{H}_{12}\text{O}$ 124.0888, found 124.0834.

(1*S*,4*R*)-Bicyclo[2.2.1]hept-2-ene-2-methanol (7).⁹ To ether at 0 °C was added diethylamine (2.92 mL, 28.2 mmol) followed by *n*-BuLi (2.5 M in hexanes, 11.3 mL, 28.2 mmol). The reaction mixture was maintained at 0 °C for 15 min and then warmed to ambient temperature. After 30 min the epoxide 6 (1.40 g, 11.3 mmol) in ether (25 mL) was added and the reaction mixture was heated to reflux. After an additional 2 h the reaction mixture was cooled, poured into H_2O (50 mL), and extracted with ether (3 \times 50 mL). The combined organic extracts were dried over MgSO_4 , concentrated, and purified by chromatography (2:1 pentane–ether) to yield the volatile allylic alcohol 7 (1.30 g, 93%): $[\alpha]_{\text{D}}^{25} = +38^\circ$ ($c = 0.35, \text{CHCl}_3$); IR (neat, NaCl) 3328, 2960, 2868, 1018 cm^{-1} ; ^{13}C NMR (126 MHz) δ 149.1, 129.1, 60.9, 48.3, 42.6, 42.1, 26.2, 24.7; ^1H NMR (400 MHz) δ 5.80 (s, 1 H), 4.20 (ab, $J = 14.1, \Delta\nu = 25.2, 2\text{ H}$), 2.84 (m, 2 H), 1.70–1.61 (m, 2 H), 1.42–1.38 (m, 2 H), 1.13 (d, $J = 8.1, 1\text{ H}$), 1.06–0.97 (m, 2 H); EIMS m/z 124 (M^+); HREIMS (M^+) calcd for $\text{C}_8\text{H}_{12}\text{O}$ 124.0888, found 124.0880.

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Additions and Corrections

Vol. 56, 1991

Joseph Frey, David A. Nugiel, and Zvi Rappoport*. Two Dimers Derived from the 2,4,6-Tri-*tert*-butylphenyl Radical, Formed during Reactions of the Aryllithium or the Grignard Reagent with Carbonyl Compounds.

Page 469, column 1, last line should read **X-ray crystal structure analysis of 1-2: space group *P1*.**

Vol. 57, 1992

Ming-tain Lai, Eugene Oh, Younan Shih, and Hung-wen Liu*. Synthesis of Enantiomerically Pure [(Methylenecyclopropyl)acetyl]-CoA: The Causative Agent of Jamaican Vomiting Sickness.

Page 2471. Since publication of our synthesis, another example has come to our attention: Kabat, M. M.; Wicha, J. *Tetrahedron Lett.* 1991, 32, 531–532.

Zhen Yang, Henry N. C. Wong,* Po Ming Hon, Hson Mou Chang, and Chi Ming Lee. A Novel Synthesis of the Dibenz-[*b,f*]oxepin Ring System: 10,11-Dihydro-11-hydroxydibenz[*b,f*]oxepin-10(11*H*)-one.

Page 4034, column 2. Supplementary Material Available should read ^1H - and ^{13}C -NMR spectra of 3, 6, 7, and 8 (8 pages). This material is contained in many libraries on microfiche, immediately

follows this article in the microfilm version of the journal, and can be ordered from the ACS; see any current masthead page for ordering information.

Ernesto G. Occhiato, Antonio Guarna,* Alberto Brandi, Andrea Goti, and Francesco De Sarlo. N-Bridgehead Polycyclic Compounds by Sequential Rearrangement–Annulation of Isoxazoline-5-spirocyclopropanes. 6. A General Synthetic Method for 5,6-Dihydro-7(8*H*)- and 2,3,5,6-Tetrahydro-7(1*H*)-indolizones.

Page 4206, Scheme I. In formulas 5a–e and 5f–h, R_3 and R_4 must be inverted.

Rui Tamura,* Ken-ichiro Watabe, Noboru Ono, and Yukio Yamamoto. Asymmetric Synthesis of 3-Substituted 2-*exo*-Methylenealkanones by Addition–Elimination Reaction Using a Chiral Leaving Group and Organometallic Nucleophiles.

Page 4898, Scheme I. The β -methyl in compound 16 should be drawn in the α position.

Jung Lee and James K. Coward*. Enzyme-Catalyzed Glycosylation of Peptides Using a Synthetic Lipid Disaccharide Substrate.

Supplementary Material. The chemical shift values given in Figure 1a,b are in error due to setting the solvent reference peak at δ 3.1 ppm rather than δ 3.3 ppm. Therefore, in each of the three spectra, the entire spectrum should be displaced 0.2 ppm downfield; e.g., in Figure 1a and b, the pair of quartets centered at δ 2.7 ppm should be at δ 2.9 ppm.