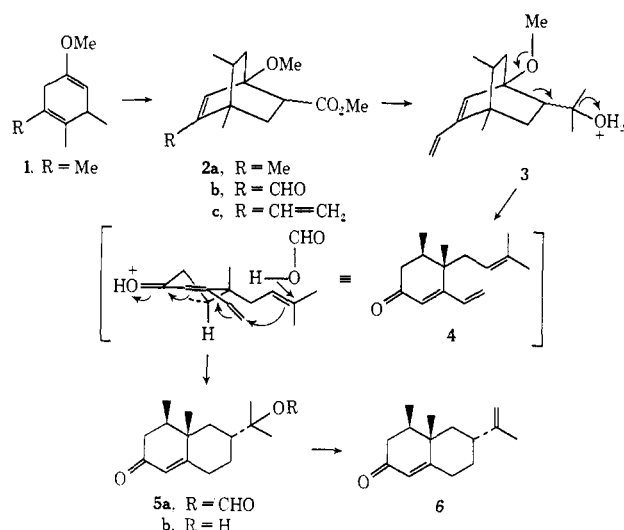


Scheme I<sup>a</sup>

<sup>a</sup> All compounds have satisfactory spectral data.

allylic position. Dropwise addition of ethereal methyl-entriphenylphosphorane<sup>10</sup> to **2b** gave the diene **2c** (50%) which was converted to the carbinol **3** by the action of ethereal methyl lithium at room temperature (96%).

Stirring of **3** with excess formic acid for 1 hr at room temperature gave rise to **5a** (50% after purification). Saponification (aqueous NaOH, *t*-BuOH, 20°) of **5a** produced **5b** (90%). The spectral properties of **5b** were identical with those reported for 11-hydroxy-11,12-dihydronootkatone.<sup>4</sup> Refluxing of **5a** in pure collidine for 15 hr in the presence of 30% by weight of neutral alumina (with respect to **5a**) gave a mixture of elimination products (70% after purification). A

(10) G. Wittig and U. Schoellkopf, *Org. Syn.*, **40**, 66 (1960).

sample of the major component (75% by nmr and glc) obtained by preparative glc was found to be spectrally identical and superimposable on glc with an authentic sample of nootkatone.<sup>11</sup> The remaining 25% of the elimination product consisted mainly of  $\alpha$ -vetivone (nmr analysis<sup>12</sup>). No 7-*epi*-nootkatone could be detected by careful pmr analysis,<sup>13</sup> showing that the final ring closure step (Scheme I) is stereospecific. The functionalized isopropyl side chain of **5a** therefore exists in the thermodynamically preferred equatorial configuration, as in natural nootkatone. Furthermore, since no *trans*-(C)-4,5-dimethyl compound could be detected<sup>14</sup> the Diels-Alder reaction to give **2a** is stereoselective as previously discussed.

A full paper bearing experimental details will appear at a later date.

**Acknowledgments.** The author is indebted to Professor A. J. Birch for the suggestion that the Diels-Alder reaction should give the correct configuration of the methyl groups. The award of a Research Scholarship from the Australian National University is gratefully acknowledged.

(11) The author is indebted to Dr. M. Pesaro, Givaudan-Esrolko, Zurich, for a gift sample of nootkatone.

(12) K. Endo and P. de Mayo, *Chem. Pharm. Bull.*, **17**, 1324 (1969).

(13) The pmr signal of the C(5)-methyl group is shifted 3 Hz downfield going from nootkatone to 7-*epi*-nootkatone. No signal corresponding to the latter compound could be detected at optimum resolution on a JEOL 100 MHz nmr spectrometer. Similar analysis has been employed previously.<sup>4</sup>

(14) In *trans*-4,5-dimethylremophilanes the pmr signal of the C(5)-methyl group is shifted up to 30 Hz upfield with respect to the corresponding *cis* isomers.<sup>4</sup> No such signal is observed for **5b** and **6**.

K. P. Dastur

Research School of Chemistry, Australian National University  
 Canberra, A.C.T. 2600, Australia

Received June 25, 1973

## Additions and Corrections

**A Bell-Shaped pH-Rate Profile for an Oxidation. The Reaction of Permanganate with Hydroxycyclohexanecarboxylic Acids** [*J. Amer. Chem. Soc.*, **93**, 4271 (1971)]. By ROSS STEWART\* and J. ANTHONY MACPHEE, Department of Chemistry, University of British Columbia, Vancouver 8, Canada.

The value of  $k_1$  for compound **3** in Table I should be  $731 \pm 25$ . The units on the  $y$  axes of Figures 2 and 3 should be  $l. \text{ mol}^{-1} \text{ min}^{-1}$ .

**The Mechanism of Reactions Involving Schiff Base Intermediates. Thiazolidine Formation from L-Cysteine and Formaldehyde** [*J. Amer. Chem. Soc.*, **93**, 6236 (1971)]. By ROLAND G. KALLEN, Department of Biochemistry, School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania 19104.

Equations 9 and 10 should read as shown below.

$$k_{\text{obsd}} = \frac{(k_{1a}\alpha_3 + k_{1b}\alpha_{13})[F]\alpha_{\text{RNH}_2\text{T}}/(\alpha_3 + \alpha_{13})}{\left\{ \frac{k_{1a}\alpha_3/K_1 + k_{1b}\alpha_{13}/K_1}{(\alpha_3 + \alpha_{13})(k_2 + k_2'a_{\text{H}^+})} \right\} + 1} \quad (9)$$

$$k_{\text{obsd}} = \frac{(k_{1a}\alpha_3 + k_{1b}\alpha_{13})[F]\alpha_{\text{RNH}_2\text{T}}/(\alpha_3 + \alpha_{13})}{\left\{ \frac{k_{1a}\alpha_3/K_1 + k_{1b}\alpha_{13}/K_1}{(\alpha_3 + \alpha_{13})(k_2 + k_2'a_{\text{H}^+} + k_2''[\text{HA}])} \right\} + 1} \quad (10)$$

**Determination of the Tautomeric Form of the Imidazole Ring of L-Histidine in Basic Solution by Carbon-13 Magnetic Resonance Spectroscopy** [*J. Amer. Chem. Soc.*, **95**, 328 (1973)]. By W. F. REYNOLDS,\* I. R. PEAT, M. H. FREEDMAN, and J. R. LYERLA, JR., Department of Chemistry and the Faculty of Pharmacy, University of Toronto, Toronto, Ontario, Canada, M5S 1A1.

In Table II, the entries listed for 3-methylhistidine are