4 may not be nucleophilic enough to open the lactone, thereby involving the intermediacy of **2a** in the formation of **3a** directly. This is first observation of the aminolysis effected by CH_3CN/TEA particularly in azalactones. The present work offers a simpler method of converting saturated lactones to the corresponding amides under mild conditions without using ammonia. In order to explore the applications of this new reaction, succinic and maleic anhydrides were reacted with CH_3CN/TEA and gave the corresponding amidic acids in good yields.

Experimental Section

The *gem*-diphenylcyclopropanecarboxamides **3a–d** were prepared by the action of DPDM on oxazolones **1a–d** in the presence of TEA/CH_3CN.

Method A. 1-Benzamido-2,2,3-triphenylcyclopropane-1-carboxamide (3a). In a typical experiment oxazolone **1a** (2.49 g, 10 mmol) was mixed with DPDM (3.88 g, 20 mmol) and TEA (2.02 g, 20 mmol) in 20 mL of CH_3CN (freshly distilled from P_2O_5). The reaction mixture was refluxed for 4–6 h. When the pink color disappeared the reaction mixture was concentrated under vacuum, and the viscous residue was purified by column chromatography (silica gel 0.08 mm, benzene–hexane (2:1)) to give 1-benzamido-2,2,3-triphenylcyclopropane-1-carboxamide (**3a**) as a colorless solid (3.88 g, 89%): mp 164 °C; mass spectrum [M^+] 432; IR ($CHCl_3$) 3500, 3000, 1780, 1645, and 1040 cm^{-1}; ^1H NMR ($CDCl_3$) δ 4.20 (s, 1 H, cyclopropyl-H), 7.24–7.61 (m, 20 H, ArH), and 8.22 (br, s, 3 H, NH and $CONH_2$). Anal. Calcd: C, 80.55; H, 5.55; N, 6.48. Found: C, 80.52; H, 5.45; N, 6.41.

Cyclopropanecarboxamides **3a–d** were also obtained by the same procedure.

Method B. Spirolactone **2a** (2.07 g, 5 mmol) was mixed with TEA (1.01 g, 10 mmol) in 20 mL of acetonitrile, and the mixture was refluxed for 4 h. The material was worked up as described in method A to give 2.0 g (93.5%) of **3a**.

Method C. Spirocyclopropane **2a** (1.5 g, 3.6 mmol) was heated with aqueous ammonia (10 mL, 20%) on a steam bath for 2 h. The solid was filtered and crystallized from benzene to give **3a** (1.4 g, 90.2%).

1-Benzamido-2,2-diphenyl-3-(4-chlorophenyl)cyclopropane-1-carboxamide (3b). A 4.37-g (10-mmol) portion of **2b** gave 3.732 g of **3c** (80% yield): mp 160 °C; mass spectrum m/z [M^+] 466.5; IR ($CHCl_3$) 3520, 3000, 1780, 1645, and 1030 cm^{-1}; ^1H NMR ($CDCl_3$) δ 4.10 (s, 1 H, cyclopropyl H), 7.20–7.85 (m, 14 H, ArH), 8.60 (br, s, 3 H).

1-Benzamido-2,2-diphenyl-3-(4-nitrophenyl)cyclopropane-1-carboxamide (3c). A 4.48-g (10-mmol) portion of **2c** gave 4.05 g of **3c** (85%): mp 162 °C; mass spectrum m/z [M^+] 477; IR ($CHCl_3$) 3520, 3000, 1780, 1650, 1520, 1320, and 1040 cm^{-1}; ^1H NMR ($CDCl_3$) δ 4.35 (s, 1 H, cyclopropyl H), 7.20–7.85 (m, 14 H, ArH), 8.54 (br, s, 3 H).

1-Acetamido-2,2,3-triphenylcyclopropane-1-carboxamide (3d). A 3.41-g (10-mmol) portion of **2d** gave 2.96 g of **3d** (80%); mp 176 °C; mass spectrum m/z [M^+] 370; IR ($CHCl_3$) 3500, 3000, 1760, 1635, and 1035 cm^{-1}; ^1H NMR ($CDCl_3$) δ 3.87 (s, 1 H, cyclopropyl, H), 7.20–7.80 (m, 15 H, ArH), 2.83 (s, 3 H, MeH), and 8.40 (br, s, 3 H).

Acknowledgment. We thank Dr. A. V. Rama Rao for constant encouragement and CSIR for the award of research associateship to N.L. We also thank Prof. Y. S. Rao, Department of Chemistry, Kennedy-King College, Chicago, IL, for obtaining the X-ray data.

Supplementary Material Available: Details of the X-ray diffraction analysis of compound **2a** (2 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.

Additions and Corrections

Vol. 57, 1992

James C. Ciula and Andrew Streitwieser*. Dependence of Aggregation on the Basicity of Some Cesium Enolates in THF.

Page 432, eq 5 is incorrect because of a transcription error. The correct equation is

$$K_{a(obs)} = K_a(1 + (1 + 8K_{dimer}[Cs^+enolate^-]_{total})^{1/2})/2 \quad (5)$$

Table I was prepared from the correct equation. We thank Reinhard Hirsch for pointing out this error.