

REGIO- AND STEREO-SELECTIVE SYNTHESIS OF AMIDO-LACTONES BY ANODIC OXIDATION.

THE APPLICATION FOR THE SYNTHESIS OF EBURNAMONINE AND VINCAMINE

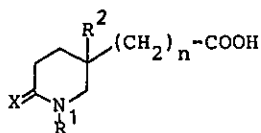
K. Irie, M. Okita, T. Wakamatsu and Y. Ban

Faculty of Pharmaceutical Sciences, Hokkaido University, Sapporo, 060 Japan

Y. Nishibata, K. Aoe and K. Koderä

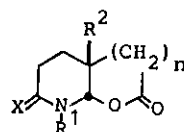
Analytical Center, Tanabe Seiyaku Co., Ltd., 2-2-50 Kawagishi, Toda, 335 Japan

The anodic oxidation of amido-carboxylic acids(1, $n=1,2$) provided the corresponding amido-lactones(2, $n=1,2$), respectively. The cyclization took place regio- and stereo-selectively at the carbon-6 of lactone formation and was largely effected by the substituent at the angular carbon-5 of 2-piperidinones. In a similar manner, 1-methoxycarbonyl derivatives(3, $n=1,2$) gave the lactones (4, $n=1,2$), by anodic oxidation followed by the simultaneous cyclization. The resulting lactones(2 and 4) are the crucial intermediates for the syntheses of (+)-eburnamonine(5) and (+)-vincamine(6). The synthesis of these pharmacologically important alkaloids has been achieved by the present method.


1a: X=O, R¹=H, R²=Et, n=1

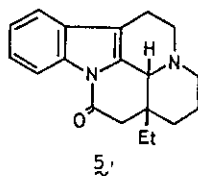
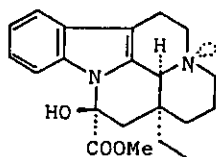
1b: X=O, R¹=H, R²=Et, n=2

3a: X=H₂, R¹=COOMe, R²=Et, n=1

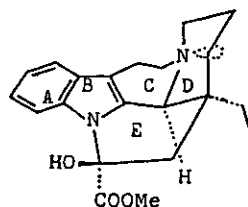
3b: X=H₂, R¹=COOMe, R²=Et, n=2

2a: X=O, R¹=H, R²=Et, n=1

2b: X=O, R¹=H, R²=Et, n=2

4a: X=H₂, R¹=COOMe, R²=Et, n=1

4b: X=H₂, R¹=COOMe, R²=Et, n=2

5


≡


6