

# A Comparison of the Enamino Carbonyl Conjugation Efficiency for Hydrogen Bonding Formation in Pyridone and Dihydropyridone Systems

Teresa Borowiak<sup>a</sup>, Irena Wolska<sup>a</sup>, Artur Korzański<sup>a</sup>, Wolfgang Milius<sup>b</sup>,  
Wolfgang Schnick<sup>b</sup>, and Wiesław Antkowiak<sup>c</sup>

<sup>a</sup> Department of Crystallography, Faculty of Chemistry, Adam Mickiewicz University,  
ul. Grunwaldzka 6, 60-780 Poznań, Poland

<sup>b</sup> Laboratorium für Anorganische Chemie, Universität Bayreuth,  
Universitätsstr. 30, D-95440 Bayreuth, Germany

<sup>c</sup> Department of Organic Spectrochemistry, Adam Mickiewicz University,  
ul. Grunwaldzka 6, 60-780 Poznań, Poland

Reprint requests to Prof. Dr. T. Borowiak. E-mail: borowiak@main.amu.edu.pl

Z. Naturforsch. **55 b**, 5–11 (2000); received August 8, 1999

Pyridone, Dihydropyridone, Enaminone  $\pi$ -Conjugated System, Intermolecular Hydrogen Bond, Steric Hindrance

The crystal structures of two compounds containing enaminone heterodiene systems and forming intermolecular hydrogen bonds N-H $\cdots$ O are reported: 1) 3-ethoxycarbonyl-2-methyl-4-pyridone (hereafter ETPY) and 2) 3-ethoxycarbonyl-2-phenyl-6-methoxycarbonyl-5,6-dihydro-4-pyridone (hereafter EPPY). The crystal packing is controlled by intermolecular hydrogen bonds N-H $\cdots$ O=C connecting the heteroconjugated enaminone groups in infinite chains. In ETPY crystals the intermolecular hydrogen bond involves the heterodienic pathway with the highest  $\pi$ -delocalization that is effective for a very short N $\cdots$ O distance of 2.701(9) Å (average from two molecules in the asymmetric unit). Probably due to the steric hindrance, the hydrogen bond in EPPY is formed following the heterodienic pathway that involves the ester C=O group, although  $\pi$ -delocalization along this pathway is less than that along the pyridone-part pathway resulting in a longer N $\cdots$ O distance of 2.886(3) Å.