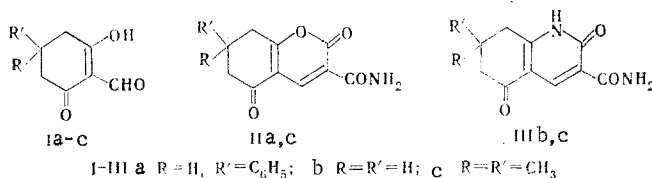


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UDC 547.831'587.51

The condensation of salicylaldehyde and its analogs with cyanoacetamide to give imino-coumarins has been reported.

We have found that 2-formyl-1,3-cyclohexanediones (I), which, in one of their tautomeric forms, contain an *o*-hydroxybenzaldehyde structural fragment, react with cyanoacetamide to give tetrahydrocoumarin or tetrahydroquinoline derivatives. Diketo aldehyde Ia is closest in reactivity to salicylaldehyde and reacts with cyanoacetamide under the conditions in [1] to give tetrahydrocoumarin IIa. We were unable to isolate the corresponding imino derivatives. 3-Carbamoyl-5-oxo-7-phenyl-5,6,7,9-tetrahydrocoumarin IIa, with mp 220-222°C (dec.), was obtained in 62% yield. IR spectrum, ν : 1750 (lactone CO); 1700, 1690 (amide and ketone CO); 3170-3400 cm^{-1} (NH).



Compounds Ib and Ic react with cyanoacetamide to give 5,6,7,8-tetrahydroquinoline derivatives IIIb, c.

3-Carbamoyl-5,6,7,8-tetrahydroquinoline-2,5-dione, with mp 189-191°C (dec.), was obtained in 68% yield. IR spectrum, ν : 1710 (amide CO); 1690, 1680 (lactam and ketone CO); 3140-3200 cm^{-1} (NH).

3-Carbamoyl-7,7-dimethyl-5,6,8-tetrahydroquinoline-2,5-dione, with mp 290°C (dec.), was obtained in 76% yield. IR spectrum, ν : 1710 (amide CO); 1680, 1630 (lactam and ketone CO); 3140-3360 cm^{-1} (NH). PMR spectrum (d_6 -DMSO), δ : 1.02 (s, 6H, CH₃), 2.45 (s, 2H, CH₂), 2.48 (s, 2H, CH₂), 7.65 (s, 2H, NH₂), 8.61 (s, 1H, 4-H), and 8.63 ppm (s, 1H, NH).

However, in the condensation of Ic with cyanoacetamide in the presence of potassium carbonate, coumarin IIc, with mp 207-209°C (dec.), is also formed in 44% yield along with tetrahydroquinoline IIIc. IR spectrum, ν : 1735 (lactone CO); 1690, 1680 (amide and ketone CO); 3180-3420 cm^{-1} (NH). PMR spectrum (CDCl₃), δ : 1.14 (s, 6H, CH₃); 2.46 (s, 2H, CH₂); 2.79 (s, 2H, CH₂); 6.27, 8.16 (s, 2H, NH₂); 8.94 ppm (s, 1H, 4-H).

LITERATURE CITED

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