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Received November 16, 1977

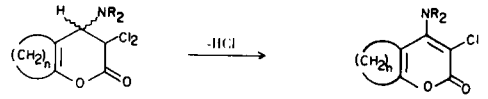
The title compounds were obtained by dehydrochlorination with collidine, DBN or triethylamine of *N,N*-disubstituted 4-amino-3,3-dichloro-3,4-dihydro-5,6-polymethylene-2*H*-pyran-2-ones already described.

J. Heterocyclic Chem., **15**, 511 (1978)

In previous work (1) we described the synthesis of *N,N*-disubstituted 4-amino-3,3-dichloro-3,4-dihydro-5,6-polymethylene-2*H*-pyran-2-ones (I), one of which was dehydrochlorinated with collidine to 4-diphenylamino-3-chloro-5,6-tetramethylene-2*H*-pyran-2-one [II, n = 4, NR_2 = $N(C_6H_5)_2$]. The dehydrochlorination reaction was later occasionally employed by us in order to obtain other *N,N*-disubstituted 4-amino-3-chloro-α-pyrones (3,4). With the aim to extend the purpose of this reaction and to obtain a number of *N,N*-disubstituted 4-amino-3-chloro-5,6-polymethylene-2*H*-pyran-2-ones (II) required for a pharmacological screening, we tried the dehydrochlorination on the whole series of compounds I.

Satisfactory yields were generally obtained with collidine or 1,5-diazabicyclo[3.4.0]-5-nonene (DBN) (in the case of compounds bearing a weakly basic disubstituted amino group) or triethylamine (mostly in the case of compounds bearing the dimethylamino group) as dehydrochlorination agents. 3,3-Dichloro-3,4-dihydro-4-diisopropylamino-5,6-polymethylene-2*H*-pyran-2-ones [I, n = 3-6, NR_2 = $N(i\text{-}C_3H_7)_2$] (1) were recovered unchanged after such treatment, owing to steric hindrance to proton abstraction by base caused by the isopropyl groups.

Compounds (IIa-i) (Table I) showed uv, ir and nmr spectra (Table II) in agreement with the proposed structure.

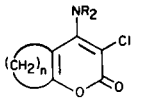


I IIa-i

The pharmacological screening concerning compounds IIc,d,g included behaviour studies (Irwin test), antipentylenetetrazole, analgesic and anticonvulsant activity

Table I

N,N-Disubstituted 4-Amino-3-chloro-5,6-polymethylene-2*H*-pyran-2-ones (IIa-i)



Formula Number	n	NR_2	Yield %	M.p. °C	Procedure	Molecular Formula	Analyses % Calcd./Found C	H	N
IIa	3	$N(CH_3)C_6H_5$	50	103 (a)	C	$C_{15}H_{14}ClNO_2$	65.34	5.12	5.08
							65.46	5.36	5.07
IIb	3	$N(C_6H_5)_2$	65	185 (b)	A	$C_{20}H_{16}ClNO_2$	71.11	4.77	4.15
							71.16	4.83	4.30
IIc	4	$N(CH_3)C_6H_5$	55	144 (b)	B	$C_{16}H_{16}ClNO_2$	66.32	5.57	4.83
							66.20	5.55	4.95
IId	5	$N(CH_3)_2$	57	72 (a)	C	$C_{12}H_{16}ClNO_2$	59.63	6.67	5.79
							59.92	7.00	5.79
IIe	5	$N(CH_3)C_6H_5$	70	122 (b)	A	$C_{17}H_{18}ClNO_2$	67.21	5.97	4.61
							67.30	5.69	4.84
IIf	5	$N(C_6H_5)_2$	60	185 (c)	A	$C_{22}H_{20}ClNO_2$	72.22	5.51	3.83
							72.16	5.37	3.97
IIg	6	$N(CH_3)_2$	31	85 (a)	C	$C_{13}H_{18}ClNO_2$	61.05	7.09	5.48
							61.35	7.15	5.64
IIh	6	$N(CH_3)C_6H_5$	58	95 (a)	B	$C_{18}H_{20}ClNO_2$	68.03	6.34	4.41
							68.30	6.41	4.33
IIi	6	$N(C_6H_5)_2$	70	177 (c)	A	$C_{23}H_{22}ClNO_2$	72.72	5.84	3.69
							72.45	5.92	3.97

(a) From anhydrous diethyl ether-petroleum ether. (b) From anhydrous diethyl ether. (c) From anhydrous propanone. 4-Diphenylamino-3-chloro-5,6-tetramethylene-2*H*-pyran-2-one was obtained in 67% yield by procedure B, instead of 44% with procedure A (*cfr.* (1)).

Table II

Uv, Ir and Nmr Spectral Data of Compounds IIa-i

Compound No.	Uv λ max nm (log ε)	Ir, cm^{-1} C=O	C=C		Nmr, δ
IIa	242 (4.00) 346 (4.10)	1725	1638	1513	2.06 (m, CH_2-5 + CH_2-6), 2.72 (m, CH_2-7), 3.42 (s, NCH_3), 6.70-7.50 (m, NC_6H_5) (a)
IIb	249 (4.10) 278 (4.10) 330 sh (4.02) 362 (4.08)	1722	1638	1512	1.92 (m, CH_2-5 + CH_2-6), 2.76 (m, CH_2-7), 7.20 (mc, $2NC_6H_5$)
IIc	243 (4.13) 302 sh (3.86) 322 (3.93) 366 (3.87)	1738	1639	1528	1.70 (m, CH_2-6 + CH_2-7), 2.00 (m, CH_2-5), 2.56 (m, CH_2-8), 3.30 (s, NCH_3), 6.60-7.50 (m, NC_6H_5)
IId	243.5 (3.90) 314 sh (3.97) 324 (3.97)	1722	1631	1524	1.77 (m, CH_2-6 + CH_2-7 + CH_2-8), 2.63 (m, CH_2-5 + CH_2-9), 3.00 (s, $2NCH_3$)
IIe	241 (4.16) 303 sh (3.83) 326 (3.96)	1737	1630	1519	1.67 (m, CH_2-6 + CH_2-7 + CH_2-8), 2.28 (m, CH_2-5), 2.76 (m, CH_2-9), 3.26 (s, NCH_3), 6.55-7.50 (m, NC_6H_5)
IIf	253 (4.01) 280 (4.19) 330 (3.94) 379 (3.87)	1729	1628	1514	1.18 (m, CH_2-7), 1.67 (m, CH_2-6 + CH_2-8), 2.30 (m, CH_2-5), 2.77 (m, CH_2-9), 7.12 (mc, $2NC_6H_5$)
IIg	242 (3.84) 314 sh (3.97) 324 (3.98)	1729	1631	1524	1.60 (broad m, CH_2-(6-9)), 2.60 (m, CH_2-5 + CH_2-10), 2.96 (s, $2NCH_3$)
IIh	242 (4.15) 303 sh (3.82) 325 (3.92) 376 sh (3.68)	1730	1630	1520	1.50 (broad m, CH_2-(6-9)), 2.31 (m, CH_2-5), 2.70 (m, CH_2-10), 3.27 (s, NCH_3), 6.60-7.50 (m, NC_6H_5)
IIi	253 (4.02) 281.5 (4.21) 328 (3.95) 380 (3.87)	1729	1627	1515	1.50 (broad m, CH_2-(6-9)), 2.26 (m, CH_2-5), 2.70 (m, CH_2-10), 7.10 (m, $2NC_6H_5$)

(a) In tetrachloromethane.

in the mouse, as well as anti-inflammatory activity in the rat (4). None of the compounds was found to be active.

EXPERIMENTAL

Uv spectra were measured in 95% ethanol with a Hitachi-Perkin-Elmer Model EPS-3T spectrophotometer. Ir spectra were taken in tetrachloromethane on a Perkin-Elmer Model 257 spectrophotometer; nmr spectra were recorded in deuteriochloroform on a Perkin-Elmer Model R12 instrument (60 Mc/s). Chemical shifts are reported as δ (ppm) relative to TMS as an internal standard. Melting points were determined with a Mettler FP1 apparatus.

General Procedures for *N,N*-Disubstituted 4-Amino-3-chloro-5,6-polymethylene-2*H*-pyran-2-ones.

A.

The procedure with collidine (compounds IIb,e,f,i) has been already described (1,2).

B.

When DBN was used (compounds IIc,h), the procedure was the same as described (3), but refluxing was continued for a longer period (0.5-1 hour).

C. (Compounds IIa,d,g).

A solution of I (1 g.) in triethylamine (15 ml.) and anhydrous benzene (5 ml.) was refluxed at about 110° for 24 hours. After cooling, the reaction mixture was filtered and the solution concentrated *in vacuo*. The residue was chromatographed on a Florisil® column (60-100 mesh, 10 g.), using petroleum ether (b.p. 40-70°) and diethyl ether as eluants.

Acknowledgement.

The authors wish to thank Dr. Maria Canepa for the microanalyses and Dr. S. Morasso and Mr. A. Panaro for the uv, ir and nmr spectra.

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(4) The biological determinations were made by "Istituto Carlo Erba per Ricerche Terapeutiche", Milano, Italy.