Registry No. I, 22719-62-6; IIa, 111190-33-1; IIb, 111190-34-2; IIc, 111190-35-3; IId, 111190-36-4; IIe, 2306-35-6; IIf, 111190-37-5; IIg, 111190-38-6; IIh, 111190-39-7; 2,2'-$H_2NC_6H_4C_6H_4NH_2$, 1454-80-4; H_2N-$CONH_2$, 57-13-6; H_3CCOCl, 75-36-5; H_3CCH_2COCl, 79-03-8; $(H_3C)_2CHCOCl$, 79-30-1; $(H_3C)_3CCOCl$, 3282-30-2; C_6H_5COCl, 98-88-4; 2-$H_3CC_6H_4COCl$, 933-88-0; 2-$H_3COC_6H_4COCl$, 21615-34-9; 2-$O_2NC_6H_4COCl$, 610-14-0.

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Synthesis of Some 12-Substituted 9,10-Dimethyldibenz[*b*,*g*]indolizine-8,11-diones

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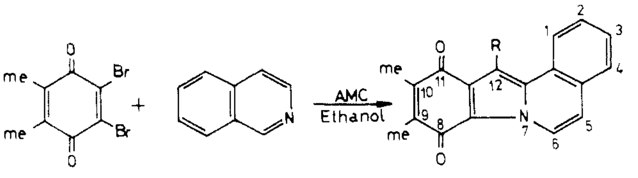
The synthesis of some 12-substituted 9,10-dimethyldibenz[*b*,*g*]indolizine-8,11-diones using 2,3-dibromo-5,6-dimethyl-1,4-benzoquinone with active methylene compounds and isoquinoline has been described.

Recently, we reported (*1*) the synthesis of some 7-substituted 9,10-dimethyldibenz[*b*,*e*]indolizine-8,11-diones using 2,3-dibromo-5,6-dimethyl-1,4-benzoquinone with active methylene compounds and quinoline. We report herein the synthesis of some 12-substituted 9,10-dimethyldibenz[*b*,*g*]indolizine-8,11-diones using isoquinoline instead of quinoline.

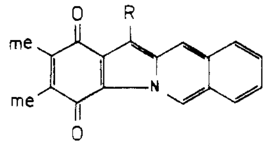


(I -VI)

I R = H
II R = CH_3
III R = CO CH_3
IV R = $CO_2C_2H_5$
V R = CO Ph
VI R = CN

The route employed is analogous to that reported by Pratt et al. (*2*) for synthesizing benzo[*g*]naphth[2,3-*b*]indolizine-8,13-diones.

Considering a similar mechanism to that of the pyridine series (*3*), the formation of compounds I-VI, and not the isomeric form (A), is favored by the fact that the proton in the 1-position in the isoquinoline ring is more acidic than the proton in the 3-position; thus position 1 will be more susceptible to neucleophilic attack to give the desired products which will be stabilized through aromaticity.



(A)

Experimental Section

Melting points were determined by using a Gallenkamp heated block apparatus.

IR spectra were recorded on a Perkin-Elmer 337 spectrometer using KBr disks.

^{1}H NMR spectra were recorded on a Jeol C-60 HL high-resolution NMR spectrometer using TMS as internal standard.

Microanalyses were carried out by the Analytical Department at the Iraqi National Oil Co. Elemental analyses (C, H, N) were obtained and submitted for review and were within ∓0.4% of the theoretical value (Table I).

Synthesis of 12-Substituted 9,10-Dimethyldibenz[*b*,*g*]indolizine-8,11-diones

General Method. A mixture of 2,3-dibromo-5,6-dimethyl-1,4-benzoquinone (0.0017 mol), which was prepared by fol-

Table I. Characterization Data of 12-Substituted 9,10-Dimethyldibenz[*b*,*g*]indolizine-8,11-diones

compd[a,b]	AMC used	yield, %	mp, °C	^{1}H NMR (δ, ppm)[c]
I	CH_3NO_2	13	275 (decomp)	2.2 (d, 6 H), 7.7 (m, 5 H), 8.4 (m, 2 H)
II	$C_2H_5NO_2$	21	>320	2.0 (d, 6 H), 2.85 (s, 3 H), 7.5 (m, 4 H), 8.35 (m, 1 H), 9.0 (d, 1 H)
III	$CH_3COCH_2COCH_3$	46	276–8	2.25 (s, 6 H), 3.05 (s, 3 H), 7.7 (m, 6 H)
IV	$CH_3COCH_2CO_2C_2H_5$	65	239–41	1.7 (t, 3 H), 2.2 (s, 6 H), 4.7 (q, 2 H), 7.5 (m, 4 H), 8.4 (m, 2 H)
V	CH_3COCH_2COPh	48	>290 (decomp)	2.25 (d, 6 H), 7.6 (m, 11 H)
VI	$NCCH_2CO_2C_2H_5$	50	>300 (decomp)	2.25 (s, 6 H), 7.7 (m, 5 H), 9.25 (d, 1 H)

[a] Compounds I–V were obtained as deep-red crystals or needles and compound VI as an orange powder. [b] The IR spectra of I to VI exhibited $\nu_{C=O}$ at 1640–1720 cm^{-1} besides the characteristic peaks. Compound VI also exhibited $\nu_{C\equiv N}$ at 2210 cm^{-1}. [c] The ^{1}H NMR spectra were all recorded in CF_3COOH except for compound V which was recorded in DMSO.

lowing the method of Smith and Austin (*4*), excess isoquinoline (6 cm^3), and the active methylene compound (AMC) (3.5 cm^3) was heated under reflux in ethanol (25 cm^3) for 3 h. The reaction mixture was cooled and the dark precipitate filtered off, washed well with ethanol, dried, and then crystallized from acetone.

Registry No. I, 111159-43-4; II, 111159-44-5; III, 111159-45-6; IV, 111159-46-7; V, 111159-47-8; VI, 111159-48-9; CH_3NO_2, 75-52-5; $C_2H_5NO_2$, 79-24-3; $CH_3COCH_2COCH_3$, 123-54-6; $CH_3COCH_2CO_2C_2H_5$, 141-97-9; CH_3COCH_2COPh, 93-91-4; $NCCH_2CO_2C_2H_5$, 105-56-6; isoquinoline, 119-65-3; 2,3-dibromo-5,6-dimethyl-1,4-benzoquinone, 38969-08-3.

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