moeity (9, 10). The C_3–CH_3 proton signal has a δ value of ~2.80 for the aliphatic series **13B–16B**, whereas it is only ~2.48 for the aromatic analogue **12B**.

***N*-(3-Methyl-2-quinoxaloyl) Amines (1C–16C).** These were obtained by deoxygenation of the corresponding quinoxaline 1,4-dioxides (0.10 mol) with excess $Na_2S_2O_4$ (69.6 g, 0.40 mol) in refluxing aqueous EtOH, following standard procedures (15). The title compounds are precipitated from the reaction mixture by cooling and dilution with water, collected, dried, and crystallized from the appropriate solvent. Yields of the pure quinoxalines were in the range 45–70%. The mass spectra of **1C–16C** show characteristic peaks at the following *m/z* values: M^+, 171, 143. The $(M - CH_2OH)^+$ ions are also observed for **12C–16C**. The ^1H NMR spectra (in Me_2SO-d_6) are in agreement with the assigned structures. The C_3–CH_3 δ value is ~2.90 for **12C–16C**.

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Registry No. **1A**, 63664-38-0; **1B**, 88996-65-0; **1C**, 88996-79-6; **2A**, 88996-62-7; **2B**, 88996-66-1; **2C**, 88996-80-9; **3A**, 58102-37-7; **3B**, 88996-67-2; **3C**, 88996-81-0; **4A**, 63664-40-4; **4B**, 88996-68-3; **4C**, 88996-82-1; **5A**, 63664-41-5; **5B**, 88996-69-4; **5C**, 88996-83-2; **6A**, 63664-42-6; **6B**, 88996-70-7; **6C**, 88996-84-3; **7A**, 64401-27-0; **7B**, 88996-71-8; **7C**, 88996-85-4; **8A**, 64401-28-1; **8B**, 88996-72-9; **8C**, 88996-86-5; **9A**, 63664-39-1; **9B**, 88996-73-0; **9C**, 88996-87-6; **10A**, 63701-36-0; **10B**, 81485-17-8; **10C**, 88996-88-7; **11A**, 63664-37-9; **11B**, 89063-57-0; **11C**, 89063-58-1; **12A**, 63664-36-8; **12B**, 88996-74-1; **12C**, 88996-89-8; **13A**, 64401-30-5; **13B**, 88996-75-2; **13C**, 88996-90-1; **14A**, 63664-35-7; **14B**, 88996-76-3; **14C**, 88996-91-2; **15A**, 88996-63-8; **15B**, 88996-77-4; **15C**, 88996-92-3; **16A**, 88996-64-9; **16B**, 88996-78-5; **16C**, 88996-93-4; [*R*-(*R**,*S**)]-MeNHCH(CH_3)CH(OH)Ph, 299-42-3; (±)-(*R**,*S**)-MeNHCH(CH_3)CH(OH)Ph, 90-81-3; diketene, 674-82-8; (*S*)-2-amino-3-methylbutanol, 2026-48-4; (*S*)-2-amino-4-methylpentanol, 7533-40-6; [*S*-(*R**,*S**)]-2-amino-3-methylpentanol, 88996-94-5; 3-(2-aminoethyl)indole hydrochloride, 343-94-2; 4-(2-aminoethyl)imidazole hydrochloride, 55-36-7; 1-adamantanamine hydrochloride, 665-66-7; 2-adamantanamine hydrochloride, 10523-68-9; D-(+)-glucosamine hydrochloride, 66-84-2; benzofuroxan, 674-82-8.

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Potential Central Nervous System Active Agents. 3. Synthesis of Some Substituted Benzamides and Phenylacetamides

Vincent C. Agwada

Department of Chemistry, Faculty of Physical Sciences, University of Nigeria, Nsukka, Nigeria

The preparation and spectral properties (IR, ^1H NMR) are given for 45 benzamides and 10 phenylacetamides substituted on nitrogen with allyl, benzhydryl, benzyl, or cyclopropyl groups, and variously substituted on the acyl part with halo, methoxyl, methyl, or nitro groups. The benzamide derivatives were synthesized by the Schotten–Baumann method, and the phenylacetamide derivatives were prepared by heating the appropriate *N*-benzhydrylammonium salt in *o*-xylene. Thirty-one of the compounds are new.

In the preceding communications (1, 2) the synthesis and the spectroscopic properties (IR, mass spectra, ^1H NMR) of several aromatic *N*-benzyl amides were reported. Presented in the current communication are the synthesis and the spectroscopic data for 45 benzamides and 10 phenylacetamides substituted on nitrogen with allyl, benzhydryl, benzyl, or cyclopropyl groups, and variously substituted on the acyl part with halo, methoxyl, methyl, or nitro groups. The benzamide derivatives were prepared by the Schotten–Baumann method in anhydrous benzene, and the phenylacetamide derivatives were synthesized from their corresponding *N*-benzhydrylammonium salts in boiling *o*-xylene as has been described earlier (1). With the exception of compounds Ia, VIa,b,h, and VIIa, all derivatives bearing the *N*-benzhydryl and *N*-cyclopropyl groups described herein are previously unreported. Compounds IIb,g, IIId, and Vb,e,f, bearing the *N*-allyl, *N,N*-diallyl, or *N,N*-dibenzyl groups, are also unreported. The spectroscopic data (IR, ^1H NMR) not hitherto described in the literature are reported in this publication. The experimental and IR data on all the compounds are summarized in Table I, and those of the ^1H NMR data are given in Table II. Satisfactory elemental analyses (±0.4% for C, H, N, and halogens, where present) were obtained for all compounds.

The structures of these amides were established on the basis of analytical and spectroscopic data. These compounds have been submitted for biological screening, and results will be published elsewhere.

Experimental Section

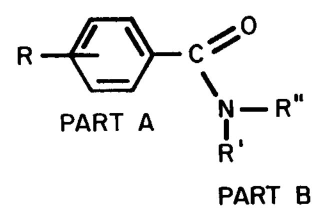
The reagents used in these experiments were of commercial grade. Mass spectra were determined on a Varian-MAT CH-5 spectrometer at 70 eV, by Messrs. J. C. Cook and M. Cochran, Mass Spectroscopy Laboratory, University of Illinois, Urbana

Table I. Experimental and IR Data of Some Substituted Benzamides and Phenylacetamides

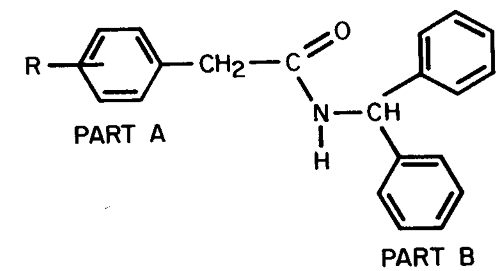
compd	mol formula	$M^{+\cdot}$ [a]	yield, %	mp, °C exptl	mp, °C reported	IR, cm^{-1} NH	IR, amide band I	IR, amide band II	IR, others
Ia	$C_{10}H_{11}NO$	161	76	99	97.5-98 (*3*), 100.6-101 (*4*)	3245	1623	1557	1567
Ib	$C_{11}H_{13}NO$	175	82	110-112		3310	1633	1528	1613 sh. 1573, 1506
Ic	$C_{11}H_{13}NO_2$	191	93	138-140		3280	1623	1542	1610, 1562 sh, 1503
Id	$C_{10}H_{10}FNO$	179	79[b]	77-78		3282	1647	1530	1617
Ie	$C_{10}H_{10}FNO$	179	60	84-84.5		3305	1638	1520	1582
If	$C_{10}H_{10}FNO$	179	95[c]	118-119		3275	1642	1543 sh, 1523	1612, 1573 sh
Ig	$C_{10}H_{10}ClNO$	195/197	81[c]	119-121		3250	1633	1549	1609 sh, 1595
Ih	$C_{10}H_{10}ClNO$	195/197	95	135		3285	1643, 1633	1530	1593
Ii	$C_{10}H_{10}BrNO$	239/241	71	120		3268	1643	1525	1613 sh, 1590
Ij	$C_{10}H_{10}INO$	287	*d*	148		3270	1645	1527	1615 sh, 1585
Ik	$C_{10}H_{10}N_2O_3$	206	69[e]	153-154		3311	1647	1528	1604 sh, 1519, 1502
Il	$C_{10}H_{10}N_2O_3$	206	82[e]	180-182		3290	1642	1545 sh, 1532	1598, 1518
IIa	$C_{11}H_{13}NO$	175	92	76-77[c]		3285	1632	1542	1503
IIb	$C_{10}H_{10}FNO$	179	78	45-46[c]		3310	1636	1542	1586
IIc	$C_{10}H_{10}FNO$	179	73	65-66[c]		3320	1633	1542	1603, 1591
IId	$C_{10}H_{10}ClNO$	195/197	80	65-66[f]	67-68 (*5*), 63-67 (*6*)	3260	1638	1527	1590
IIe	$C_{10}H_{10}ClNO$	195/197	81	50	43-45 (*7*)	3308	1633	1526	1595, 1568
IIf	$C_{10}H_{10}ClNO$	195/197	92	72-73[c]	73 (*8*)	3280	1628	1528	1593
IIg	$C_{10}H_{10}BrNO$	239/241	*d*	88-89[c]		3260	1640	1529	1588
IIh	$C_{10}H_{10}N_2O_3$	206	95	55[e]		3265	1639	1540 sh	1518
IIi	$C_{10}H_{10}N_2O_3$	206	99[e]	119-120		3320	1650, 1638	1540	1597, 1513
IIIa	$C_{14}H_{17}NO$	215	77[g]	50-52			1631		
IIIb	$C_{14}H_{17}NO_2$	231	86[g]	40			1623		1603, 1591
IIIc	$C_{13}H_{14}ClNO$	235/237	78[g]	57			1633		1595
IIId	$C_{13}H_{14}N_2O_3$	246	47[c]	53-53.5			1637		1569, 1514
IVa	$C_{14}H_{12}FNO$	229	82	68-69	39-40 (*9*)	3268	1636	1528	1613
IVb	$C_{14}H_{12}N_2O_3$	256	77	138-139[h]	122-123 (*10*)	3278	1635	1550	1614, 1522
Va	$C_{21}H_{19}NO$	301	98	113	112-112.8 (*11, 12*), 113-114 (*13*), 113.5-114.5 (*14*)		1620		1570
Vb	$C_{22}H_{21}NO$	315	56	98			1627		
Vc	$C_{22}H_{21}NO_2$	331	88	121-122[c]	121-122 (*14*)		1633		1604
Vd	$C_{21}H_{18}FNO$	319	91	*i*			1630		1610, 1580
Ve	$C_{21}H_{18}FNO$	319	87	97[c]			1629		1602, 1585
Vf	$C_{21}H_{18}ClNO$	335/337	91	116-117[c]			1630		1590, 1583
Vg	$C_{21}H_{18}ClNO$	335/337	95	125-127	112-113.5 (*14*)		1637		1568
Vh	$C_{21}H_{18}ClNO$	335/337	65	110[c]	108-109 (*14*)		1640		1593
Vi	$C_{21}H_{18}N_2O_3$	346	84	109[c]	104-105 (*15*)		1637		1575, 1541, 1526
Vj	$C_{21}H_{18}N_2O_3$	346	86	129[h]			1636		1600, 1515
VIa	$C_{20}H_{17}NO$	287	92[e]	167	167-169 (*16*), 167, 173 (*17*), 171-172.4 (*18, 19*), 175-176 (*20*), 185 (*21*)	3308	1633	1510	1595, 1583
VIb	$C_{21}H_{19}NO_2$	317	81[e]	193-195	198-199 (*20*)	3330	1635	1520	1618, 1578
VIc	$C_{20}H_{16}FNO$	305	74[e]	176-177		3340	1640	1520	1615, 1583
VId	$C_{20}H_{16}FNO$	305	91	118.5		3305	1643	1548	1605
VIe	$C_{20}H_{16}ClNO$	321/323	79[e]	163-164		3310	1642	1515	1590
VIf	$C_{20}H_{16}ClNO$	321/323	88[e]	220		3325	1640	1515	1593
VIg	$C_{20}H_{16}N_2O_3$	332	65	203-204		3300	1634	1520	1570 sh

VIh	$C_{20}H_{16}N_2O_3$	332	71[e]	250-251	223-224 (*20*)	3250	1635	1515	1603, 1538
VIIa	$C_{21}H_{19}NO$	301	80[e]	162-163	161.2-162.4 (*19*), 164-165 (*20*)	3300	1652	1522	1598, 1584
VIIb	$C_{22}H_{21}NO$	315	60[e]	174		3290	1650	1530	1598, 1584
VIIc	$C_{22}H_{21}NO$	315	89[e]	193		3270[j]	1649	1530	1600 sh
VIId	$C_{22}H_{21}NO_2$	331	76[e]	147-148		3290	1647	1529	1600, 1585
VIIe	$C_{22}H_{21}NO_2$	331	66[h]	125-127		3310	1647	1522	1610 sh, 1584
VIIf	$C_{22}H_{21}NO_2$	331	70[e]	175		3265	1637	1543, 1535	1608 sh, 1508
VIIg	$C_{21}H_{18}FNO$	319	*d, h*	152		3295	1647	1523 sh, 1510	1597
VIIh	$C_{21}H_{18}ClNO$	335/337	80[e]	185		3287	1650	1530	1594
VIIi	$C_{21}H_{18}ClNO$	335/337	85[e]	163		3250	1642	1545	1602
VIIj	$C_{21}H_{18}BrNO$	379/381	78[e]	164-165		3310	1632	1528	1603 sh, 1583

[a] The mass spectra of these amides will be published later. [b] From petroleum ether (60-80 °C). [c] From benzene-petroleum ether. [d] Quantitative yield. [e] From acetone-benzene. [f] From acetone-petroleum ether. [g] Crystallized neat. [h] From acetone. [i] Wide melting range (80-90 °C (*14*)). [j] Spectrum obtained from a Perkin-Elmer Infracord Model 137.



no.	R	R′	R″	no.	R	R′	R″
Ia	H	H	C_3H_5 cyclopropyl	IIIb	4-OMe	$CH_2CH{=}CH_2$	$CH_2CH{=}CH_2$
				IIIc	4-Cl	$CH_2CH{=}CH_2$	$CH_2CH{=}CH_2$
Ib	4-Me	H	C_3H_5	IIId	2-NO_2	$CH_2CH{=}CH_2$	$CH_2CH{=}CH_2$
Ic	4-OMe	H	C_3H_5	IVa	2-F	H	$ArCH_2$
Id	2-F	H	C_3H_5	IVb	2-NO_2	H	$ArCH_2$
Ie	3-F	H	C_3H_5	Va	H	$ArCH_2$	$ArCH_2$
If	4-F	H	C_3H_5	Vb	4-Me	$ArCH_2$	$ArCH_2$
Ig	2-Cl	H	C_3H_5	Vc	4-OMe	$ArCH_2$	$ArCH_2$
Ih	4-Cl	H	C_3H_5	Vd	2-F	$ArCH_2$	$ArCH_2$
Ii	2-Br	H	C_3H_5	Ve	4-F	$ArCH_2$	$ArCH_2$
Ij	2-I	H	C_3H_5	Vf	2-Cl	$ArCH_2$	$ArCH_2$
Ik	2-NO_2	H	C_3H_5	Vg	3-Cl	$ArCH_2$	$ArCH_2$
Il	4-NO_2	H	C_3H_5	Vh	4-Cl	$ArCH_2$	$ArCH_2$
IIa	4-Me	H	$CH_2CH{=}CH_2$	Vi	2-NO_2	$ArCH_2$	$ArCH_2$
IIb	3-F	H	$CH_2CH{=}CH_2$	Vj	4-NO_2	$ArCH_2$	$ArCH_2$
IIc	4-F	H	$CH_2CH{=}CH_2$	VIa	H	H	Ar_2CH
IId	2-Cl	H	$CH_2CH{=}CH_2$	VIb	4-OMe	H	Ar_2CH
IIe	3-Cl	H	$CH_2CH{=}CH_2$	VIc	2-F	H	Ar_2CH
IIf	4-Cl	H	$CH_2CH{=}CH_2$	VId	4-F	H	Ar_2CH
IIg	2-Br	H	$CH_2CH{=}CH_2$	VIe	2-Cl	H	Ar_2CH
IIh	2-NO_2	H	$CH_2CH{=}CH_2$	VIf	4-Cl	H	Ar_2CH
IIi	4-NO_2	H	$CH_2CH{=}CH_2$	VIg	2-NO_2	H	Ar_2CH
IIIa	4-Me	$CH_2CH{=}CH_2$	$CH_2CH{=}CH_2$	VIh	4-NO_2	H	Ar_2CH



no.	R	no.	R
VIIa	H	VIIf	4-OMe
VIIb	2-Me	VIIg	4-F
VIIc	4-Me	VIIh	2-Cl
VIId	2-OMe	VIIi	4-Cl
VIIe	3-OMe	VIIj	4-Br

Table II. ^{1}H NMR Spectral Data of Some Substituted Benzamides and Phenylacetamides[a]

compd	chemical shifts, δ
Ia	7.77 (m, 2, ArH), 7.33 (m, 3, ArH; + 1 NH), 2.88 (m, 1, methine), 0.80 (m, 1, methylene), 0.63 (m, 3, methylene)
Ib	7.70 (d, 2, J = 8, ArH), 7.20 (d, 2, J = 8, ArH), 6.65 (br, 1, NH), 2.87 (m, 1, methine), 2.83 (s, 3, ArCH$_3$), 0.87 (m, 1, methylene), 0.70 (m, 3, methylene)
Ic	7.77 (d, 2, J = 8, ArH), 6.83 (d, 2, J = 8, ArH; + 1 NH), 3.78 (s, 3, ArOCH$_3$), 2.87 (m, 1, methine), 0.80 (m, 1, methylene), 0.63 (m, 3, methylene)
Id	7.80-8.30 (m, 1, ArH), 6.50-7.70 (m, 3, ArH; + 1 NH), 2.93 (m, 1, methine), 0.90 (m, 1, methylene), 0.70 (m, 3, methylene)
Ie	7.97 (br, 1, NH), 6.80-7.80 (m, 4, ArH), 2.87 (m, 1, methine), 0.73 (m, 4, methylene)
If	7.50-8.10 (m, 2, ArH), 6.70-7.50 (m, 2, ArH; + 1 NH), 2.87 (m, 1, methine), 0.82 (m, 1, methylene), 0.70 (m, 3, methylene)
Ig	7.00-7.80 (m, 4, ArH), 6.70 (br, 1, NH), 2.90 (m, 1, methine), 0.88 (m, 1, methylene), 0.70 (m, 3, methylene)
Ih	7.77 (d, 2, J = 8, ArH), 7.30 (d, 2, J = 8, ArH; + 1 NH), 2.87 (m, 1, methine), 0.82 (m, 1, methylene), 0.70 (m, 3, methylene)
Ii	7.23 (m, 4, ArH), 6.46 (br, 1, NH), 2.90 (m, 1, methine), 0.87 (m, 1, methylene), 0.70 (m, 3, methylene)
Ij	7.82 (d, 1, J = 8, ArH), 6.70-7.50 (m, 3, ArH), 6.23 (br, 1, NH), 2.87 (m, 1, methine), 0.87 (m, 1, methylene), 0.73 (m, 3, methylene)
Ik	8.67 (br, 1, NH),[b] 8.00 (d, 1, J = 8, ArH), 7.30-7.87 (m, 3, ArH), 2.87 (m, 1, methine), 0.77 (m, 1, methylene), 0.58 (m, 3, methylene)
Il	8.73 (br, 1, NH),[b] 8.33 (d, 2, J = 8, ArH), 8.03 (d, 2, J = 8, ArH), 2.87 (m, 1, methine), 0.80 (m, 1, methylene), 0.67 (m, 3, methylene)
IIa	7.72 (d, 2, J = 8, ArH), 7.12 (d, 2, J = 8, ArH), 6.76 (br, 1, NH), 5.73 (m, 1, =CH), 5.23 (d, J = 8, =CH$_2$), 5.03 (m, =CH$_2$), 4.03 (t, 2, J = 5, NCH$_2$—C=), 2.73 (s, 3, ArCH$_3$)
IIb	6.80-8.00 (m, 4, ArH; + 1 NH), 5.74 (m, 1, =CH), 5.30 (d, J = 8, =CH$_2$), 5.08 (m, =CH$_2$), 4.07 (t, 2, J = 5, NCH$_2$—C=)
IIc	6.80-8.10 (m, 4, ArH), 7.47 (br, 1, NH), 5.67 (m, 1, =CH), 5.22 (d, J = 8, =CH$_2$), 5.00 (m, =CH$_2$), 4.00 (t, 2, J = 5, NCH$_2$—C=)
IId	7.20 (m, 4, ArH; + 1 NH), 5.63 (m, 1, =CH), 5.22 (d, J = 10, =CH$_2$), 5.00 (m, =CH$_2$), 3.89 (t, 2, J = 5, NCH$_2$—C=)
IIe	6.80-8.20 (m, 4, ArH; + 1 NH), 5.70 (m, 1, =CH), 5.27 (d, J = 8, =CH$_2$), 5.03 (m, =CH$_2$), 4.00 (t, 2, J = 5, NCH$_2$—C=)
IIf	7.77 (d, 2, J = 8, ArH), 7.30 (d, 2, J = 8, ArH; + 1 NH), 5.68 (m, 1, =CH), 5.25 (d, J = 6, =CH$_2$), 5.03 (m, =CH$_2$), 4.02 (t, 2, J = 5, NCH$_2$—C=)
IIg	7.25 (m, 4, ArH), 6.68 (br, 1, NH), 5.68 (m, 1, =CH), 5.28 (d, J = 10, =CH$_2$), 5.07 (m, =CH$_2$), 3.95 (t, 2, J = 5, NCH$_2$—C=)
IIh	7.20-8.30 (m, 4, ArH), 6.98 (br, 1, NH), 5.63 (m, 1, =CH), 5.27 (d, J = 8, =CH$_2$), 5.03 (m, =CH$_2$), 3.88 (t, 2, J = 5, NCH$_2$—C=)
IIi	8.23 (d, 2, J = 8, ArH), 7.90 (d, 2, J = 8, ArH), 6.87 (br, 1, NH), 5.72 (m, 1, =CH), 5.30 (d, J = 8, =CH$_2$), 5.07 (m, =CH$_2$), 4.07 (t, 2, J = 5, NCH$_2$—C=)
IIIa	7.37 (d, 2, J = 8, ArH), 7.17 (d, 2, J = 8, ArH), 5.65 (m, 2, =CH), 5.30 (s, =CH$_2$), 5.08 (d, J = 6, =CH$_2$), 4.00 (d, 4, J = 5, N(CH$_2$—C=)$_2$), 2.35 (s, 3, ArCH$_3$)
IIIb	7.37 (d, 2, J = 8, ArH), 6.80 (d, 2, J = 8, ArH), 5.60 (m, 2, =CH), 5.22 (s, =CH$_2$), 5.00 (d, J = 6, =CH$_2$), 3.92 (d, 4, J = 5, N(CH$_2$—C=)$_2$), 3.65 (s, 3, ArOCH$_3$)
IIIc	7.33 (m, 4, ArH), 5.62 (m, 2, =CH), 5.28 (s, =CH$_2$), 5.07 (d, J = 9, =CH$_2$), 3.95 (br, 4, N(CH$_2$—C=)$_2$)
IIId	8.18 (d, 1, J = 6, ArH), 7.20-7.90 (m, 3, ArH), 4.70-6.40 (m, 6, =CH + =CH$_2$), 4.18 (d, J = 5, N(CH$_2$—C=)$_2$), 3.70 (d, J = 5, N(CH$_2$—C=)$_2$)
IVa	6.50-8.20 (m, 9, ArH, A and B; + 1 NH), 4.62 (d, J = 6, NCH$_2$-Ar)
IVb	7.00-8.20 (m, 9, ArH, A and B), 6.87 (br, 1, NH), 4.42 (d, 2, J = 6, NCH$_2$—Ar)
Vb	6.80-7.70 (m, 14, ArH, A and B), 4.57 (br s, 4, N(CH$_2$—Ar)$_2$), 2.32 (s, 3, ArCH$_3$)
Ve	6.70-7.70 (m, 14, ArH, A and B),[c] 4.52 (br s, 4, N(CH$_2$—Ar)$_2$)
Vf	6.70-7.70 (m, 14, ArH, A and B), 4.53 (br s, 4, N(CH$_2$—Ar)$_2$)
VIa	7.00-8.00 (m, 15, ArH, A and B; + 1 NH), 6.48 (d, 1, J = 8, NCHAr$_2$)
VIb	7.80 (d, 2, J = 8, ArH, A), 7.28 (m, 10, ArH, B), 6.90 (d, 2, J = 8, ArH, A; + 1 NH), 6.43 (d, 1, J = 8, NCHAr$_2$), 3.83 (s, 3, ArOCH$_3$)
VIc	8.07 (m, 1, ArH, A), 7.27 (m, 13, ArH, A and B; + 1 NH), 6.50 (d, 1, J = 8, NCHAr$_2$)
VId	7.83 (m, 2, ArH, A), 6.80-7.40 (m, 12, ArH, A and B; + 1 NH), 6.40 (d, 1, J = 8, NCHAr$_2$)
VIe	7.65 (m, 1, ArH, A), 7.28 (m, 13, ArH, A and B; + 1 NH), 6.43 (d, 1, J = 8, NCHAr$_2$)
VIf	7.73 (d, 2, J = 8, ArH, A), 7.27 (m, 12, ArH, A and B), 6.73 (br, NH), 6.37 (d, 1, J = 8, NCHAr$_2$)
VIg	9.70 (d, 1, J = 8, NH),[b] 6.80-8.30 (m, 14, ArH, A and B), 6.33 (d, 1, J = 8, NCHAr$_2$)
VIh	9.67 (d, 1, J = 8, NH),[b] 8.27 (m, 4, ArH, A), 7.33 (m, 10, ArH, B), 6.50 (d, 1, J = 8, NCHAr$_2$)
VIIa	6.80-7.60 (m, 15, ArH, A and B; + 1 NH), 6.23 (s, 1, NCHAr$_2$), 3.55 (s, 2, ArCH$_2$—CO)
VIIb	8.93 (d, 1, J = 8, NH),[b] 6.80-7.60 (m, 14, ArH, A and B), 6.17 (d, 1, J = 8, NCHAr$_2$), 3.62 (s, 2, ArCH$_2$—CO), 2.25 (s, 3, ArCH$_3$)
VIIc	8.97 (d, 1, J = 8, NH),[b] 6.80-7.60 (m, 14, ArH, A and B), 6.12 (d, 1, J = 8, NCHAr$_2$), 3.50 (s, 2, ArCH$_2$—CO), 2.23 (s, 3, ArCH$_3$)
VIId	8.77 (d, 1, J = 8, NH),[b] 6.70-7.70 (m, 14, ArH, A and B), 6.20 (d, 1, J = 8, NCHAr$_2$), 3.72 (s, 3, ArOCH$_3$), 3.58 (s, 2, ArCH$_2$—CO)
VIIe	9.02 (d, 1, J = 8, NH),[b] 6.50-7.60 (m, 14, ArH, A and B), 6.20 (d, 1, J = 8, NCHAr$_2$), 3.67 (s, 3, ArOCH$_3$), 3.58 (s, 2, ArCH$_2$—CO)
VIIf	6.70-7.50 (m, 14, ArH, A and B; + 1 NH),[c] 6.23 (s, 1, NCHAr$_2$), 3.77 (s, 3, ArOCH$_3$), 3.50 (s, 2, ArCH$_2$—CO)
VIIg	9.00 (d, 1, J = 8, NH),[b] 7.27 (m, 14, ArH, A and B), 6.18 (d, 1, J = 8, NCHAr$_2$), 3.60 (s, 2, ArCH$_2$—CO)
VIIh	9.00 (d, 1, J = 8, NH),[b] 7.30 (m, 14, ArH, A and B), 6.17 (d, 1, J = 8, NCHAr$_2$), 3.80 (s, 2, ArCH$_2$—CO)
VIIi	9.05 (d, 1, J = 8, NH),[b] 7.30 (m, 14, ArH, A and B), 6.18 (d, 1, J = 8, NCHAr$_2$), 3.62 (s, 2, ArCH$_2$—CO)
VIIj	9.00 (d, 1, J = 8, NH),[b] 6.80-7.70 (m, 14, ArH, A and B), 6.20 (d, 1, J = 8, NCHAr$_2$), 3.60 (s, 2, ArCH$_2$—CO)

[a] Symbols: br = broad signal; br s = broad singlet; d = doublet; m = multiplet; s = singlet; t = triplet. [b] Measured in (CD$_3$)$_2$SO. [c] Spectrum obtained from a Varian Associates EM-390 instrument.

(to whom I am grateful). Unless otherwise mentioned, melting points were determined on a Kofler hot stage and are uncorrected. Infrared (IR) spectra were obtained on a Perkin-Elmer 257 grating spectrometer in Nujol mulls. Proton nuclear magnetic resonance (^{1}H NMR) spectra were measured on a Varian Associates T-60 instrument, in $CDCl_3$. All peak positions were measured in ppm relative to tetramethylsilane (Me_4Si) as an internal standard ($\delta_{Me_4Si} = 0$). The J values are recorded in hertz. Yields were based on crystallization from benzene.

Acid Chloride Method. Typical Procedure 1. N-Allyl-3-chlorobenzamide (IIe). To a 50-mL dry benzene solution of 3-chlorobenzoyl chloride (17.5 g, 0.1 mol) was added cautiously, with stirring and cooling (ice bath), allylamine (11.4 g, 0.2 mol) in 50 mL of benzene over 0.5 h; the final solution was allowed to stir for 18 h. Workup as usual gave 19.1 g of crude and 15.8 g from benzene. (This procedure was used in the synthesis of the *N*-allyl and *N*-cyclopropyl compounds.)

Typical Procedure 2. N-Benzhydrylbenzamide (VIa). Benzoyl chloride (14.1 g, 0.1 mol) in 50 mL of dry benzene was treated likewise, as above, with benzhydrylamine (18.3 g, 0.1 mol) and 15.0 g of triethylamine dissolved in 50 mL of benzene. Workup as usual gave 30.1 of crude and 26.3 g from acetone-benzene.

Thermal Method. Typical Procedure. N-Benzhydryl-4-chlorophenylacetamide (VIII). A mixture of 4-chlorophenylacetic acid (8.5 g, 0.05 mol), benzhydrylamine (9.2 g, 0.05 mol), and 50 mL of *o*-xylene was placed in a 100-mL round-bottomed flask equipped with a reflux condenser and a Dean-Stark apparatus and heated in an electrical heating mantle for 6 h when distillation of water ceased. Workup as usual gave 14.5 g of crude and 13.4 g from acetone-benzene.

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Registry No. Ia, 15205-35-3; Ib, 88229-12-3; Ic, 88229-13-4; Id, 88229-14-5; Ie, 88229-15-6; If, 88229-16-7; Ig, 88229-17-8; Ih, 39887-35-9; Ii, 88229-18-9; Ij, 88229-19-0; Ik, 88229-20-3; Il, 88229-21-4; IIa, 88229-22-5; IIb, 88229-23-6; IIc, 39887-14-4; IId, 66896-68-2; IIe, 35306-52-6; IIf, 5866-99-9; IIg, 88229-24-7; IIh, 88229-25-8; IIi, 88229-26-9; IIIa, 39108-89-9; IIIb, 39108-80-0; IIIc, 5867-01-6; IIId, 88229-27-0; IVa, 724-37-8; IVb, 52745-10-5; Va, 23825-35-6; Vb, 88229-28-1; Vc, 57409-26-4; Vd, 57409-28-6; Ve, 88229-29-2; Vf, 7465-70-5; Vg, 57409-24-2; Vh, 7461-37-2; Vi, 57409-27-5; Vj, 2585-27-5; VIa, 1485-72-9; VIb, 69790-46-1; VIc, 88229-30-5; VId, 88229-31-6; VIe, 69790-47-2; VIf, 88229-32-7; VIg, 88229-33-8; VIh, 88229-34-9; VIIa, 10254-16-7; VIIb, 88229-35-0; VIIc, 88229-36-1; VIId, 88229-37-2; VIIe, 88229-38-3; VIIf, 88229-39-4; VIIg, 88229-40-7; VIIh, 88229-41-8; VIIi, 88229-42-9; VIIj, 88229-43-0; 3-chlorobenzoyl chloride, 618-46-2; benzoyl chloride, 98-88-4; 4-chlorophenylacetic acid, 1878-66-6; allylamine, 107-11-9; benzhydrylamine, 91-00-9.

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Potential Central Nervous System Active Agents. 4. Synthesis of *N*-Isobutylbenzamides

Vincent C. Agwada*

Department of Chemistry, Faculty of Physical Sciences, University of Nigeria, Nsukka, Nigeria

Peter Beak

School of Chemical Sciences, Department of Chemistry, Roger Adams Laboratory, University of Illinois, Urbana, Illinois 61801

The preparation and spectral properties (IR, ^{1}H NMR) are given for 11 *N*-isobutylbenzamides, variously substituted on the acyl part with halo, methoxyl, methyl, or nitro groups, including two new ones. The amides were synthesized by the Schotten-Baumann method in anhydrous benzene.

In the preceding communications (*1-3*), the synthesis and the spectroscopic data (IR, mass spectra, ^{1}H NMR) of some substituted benzamides and phenylacetamides were reported. As part of a general study of the structure-activity relationship in the central nervous system active compounds, 11 *N*-isobutylbenzamides, variously substituted on the acyl part with halo, methoxyl, methyl, or nitro groups, were synthesized by the Schotten-Baumann method in anhydrous benzene. Compounds **4** and **9** are new. The spectroscopic data (IR, ^{1}H NMR) not hitherto described in the literature are reported in this communication.

The experimental and IR data on all of the compounds are summarized in Table I, and those of the ^{1}H NMR spectral data

