

TABLE I
Analysis, infrared and magnetic measurements

Compound	% of metal		% of oxalate		Infrared spectral measurements				μ_{eff} (B.M.)
	Found	Calc.	Found	Calc.	N-H stretching frequency (3,400)	C-H ring deformation (990-600)	O-C-O		
							Sym.	Asym.	
NiC ₂ O ₄ ·2H ₂ O ..	31.09	32.13	47.10	48.16	..	..	1335 vs	1640 s	3.2
NiC ₂ O ₄ (pyridine) ₂ ..	18.19	19.27	29.09	28.88	..	800 w	1320 ms	1760 m	3.2
NiC ₂ O ₄ (isoquinoline) ₂ ..	14.14	14.54	21.67	21.74	..	861 m	1315 w	1765 s	4.0
NiC ₂ O ₄ (o-phenanthroline) ..	..	..	24.09	24.27	..	870 s	1330 m	1760 vs	2.7
NiC ₂ O ₄ (ammonia) ₄ ..	28.19	26.78	41.31	41.97	3305 s	802 m	1255 w	1760 vs	3.4
NiC ₂ O ₄ (ethylenediamine) ₃	17.40	17.96	26.98	26.95	3290 s	978 m	1250 m	1762 vs	3.1

Nickel complexes with nitrogen donor ligands have been extensively studied¹⁻⁴ but very little information is available on their structures. It was thus proposed to determine the structures of some of the complexes of nickel (II) oxalate with amines.

Complexes were prepared by suspending nickel(II) oxalate in chloroform and adding a little more than the calculated quantity of amine. The mixture was refluxed for seven hours. The resulting compound was filtered, washed with chloroform till free from the ligand, dried and analysed. However the ammonia complex was prepared by dissolving nickel (II) oxalate in conc. ammonia and precipitating the complex by adding the acetone.

Infrared spectral measurements were performed on a Perkin Elmer Infrared Spectrophotometer model 337 and magnetic susceptibilities of the complexes were determined by Guoy method at room temperature.

All the complexes were found to be paramagnetic with the magnetic moment all lying within the range 2.7-3.4 B.M. as expected for the octahedral and tetrahedral complexes of nickel (II) except for isoquinoline complex which shows a very high magnetic moment (4.0 B.M.) as reported⁵.

The infrared spectra prove the co-ordination of amines as the following major changes are observed in the spectra of these compounds which are analogous to those reported earlier⁶⁻⁸

(1) the shift of C-H stretching (ring hydrogen) to higher frequency.

(2) shift of electron density towards the metal for strengthening co-ordinate structure.

(3) the antisymmetric O-C-O band shifts to higher (1700 cm⁻¹) value and symmetric shift to lower value (1400 cm⁻¹).

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SUBSTITUTED INDOLE HYDRAZINES AS POSSIBLE ANTICONVULSANTS

THE significance of 5-hydroxytryptamine (5-HT) and other tryptamines in the functioning of central nervous system has in recent years aroused interest in search of indole derivatives as potential psychotropic agents. Furthermore, clinical efficacy of 3-(2-aminobutyl) indole for the treatment of some types of depression¹ and the ability of some substituted indole hydrazines to inhibit monoamine oxidase² led to the synthesis of 1-(substituted indole)-2-(substituted benzylidene) hydrazines as possible anticonvulsants.

EXPERIMENTAL

2-Methyl indole-3-acetylhydrazine.—Phenyl hydrazine hydrochloride, cyclized to 2-methyl indole-3-acetate³, was subsequently transformed into 2-methyl indole-3-acylhydrazide².

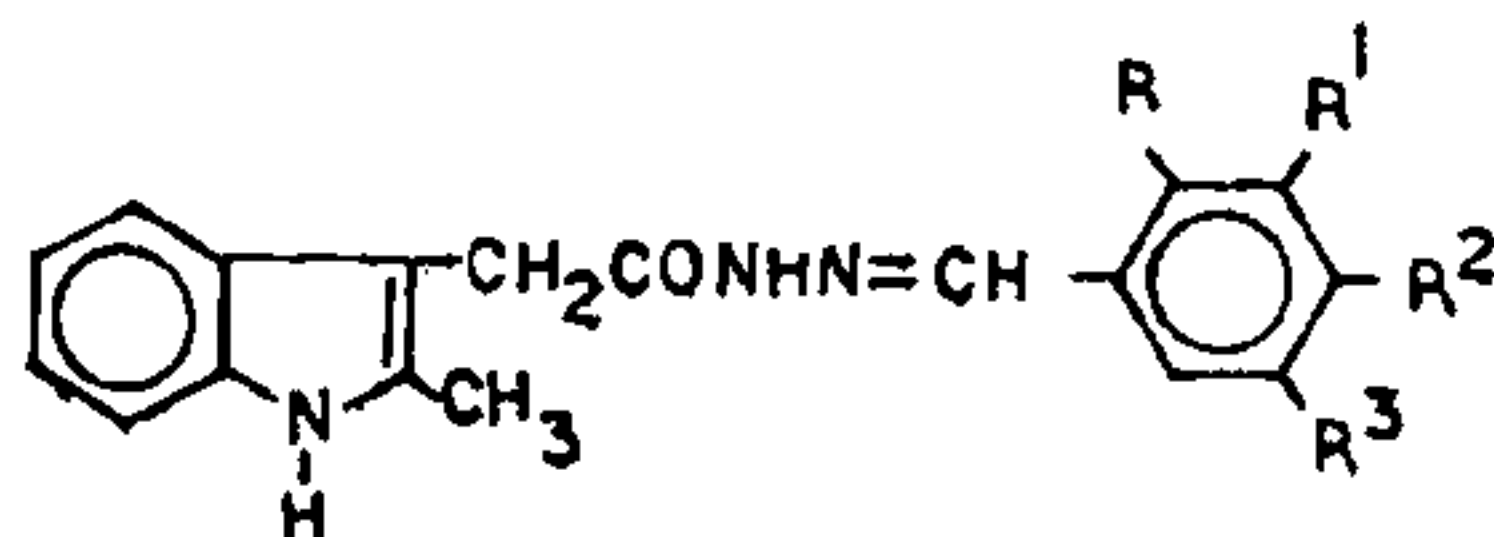
1-(2-Methyl-3-acetyl indole)-2-(substituted benzylidene) hydrazines (Table I).—An ethanolic solution of 2-methyl indole-3-acetylhydrazine (0.01 mole) and the appropriate

aldehyde (0.01 mole) was refluxed under anhydrous conditions for 3 to 4 hr. The reaction mixture was then filtered hot and the solid obtained on distilling off the excess of solvent and cooling was collected by filtration recrystallized from ethanol. The melting points, yields and analytical data are reported in Table I.

activity where maximum protection of 40% was observed with 1-(2-Methyl-3-acetylindole)-2-(4'-hydroxybenzylidene) hydrazine (compound No. 4). Administration of these compounds failed to protect pentylene tetrazol treated animals against death since 40-100% mortality was observed during 24 hr. period. No mortality, however, was observed with indole

TABLE I

1-(2-Methyl-3-acetylindole)-2-(substituted benzylidene) hydrazines



Sl. No.	R	R ¹	R ²	R ³	Yield %	M.P. °C	Carbon %		Hydrogen %		Nitrogen %	
							Calcd.	Found	Calcd.	Found	Calcd.	Found
1	H	H	H	H	50	209	74.22	74.39	5.84	5.96	14.43	14.16
2	OH	H	H	H	48	205-207	70.35	70.08	5.53	5.18	13.68	13.44
3	H	OH	H	H	60	146-148	70.35	70.62	5.53	5.76	13.68	13.39
4	H	H	OH	H	52	231	70.35	70.59	5.53	5.71	13.68	13.45
5	H	H	OCH ₃	H	53	213-214	77.02	70.88	5.91	5.67	13.08	13.34
6	OCH ₃	OCH ₃	H	H	50	195	68.37	68.19	5.98	6.16	11.96	11.68
7	H	OCH ₃	OH	H	54	200	67.65	67.47	5.63	5.38	12.46	12.17
8	Cl	H	H	H	44	205	66.35	66.64	4.91	4.76	12.90	12.62
9	H	H	Cl	H	40	255	66.35	66.69	4.91	4.65	12.90	13.03
10	OH	Cl	H	Cl	46	230-232	57.44	57.16	3.98	4.14	11.17	10.85
11	H	H	N<CH ₃ CH ₃	H	48	260	71.85	71.56	6.58	6.34	16.76	16.38

Anticonvulsant activity.—Anticonvulsant activity of substituted indole hydrazines was determined at a dose of 100 mg/kg. i.p. against pentylene tetrazol induced seizures⁴. As is evident from Table II few indole hydrazines exhibited low anticonvulsant

activity.

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TABLE II

Compound* No.	Protection against pentylene tetrazol induced seizures %	24 hr mortality %
1	0	80
2	0	100
3	0	80
4	40	0
5	20	100
6	0	50
7	0	100
8	0	100
9	20	40
10	20	100
11	20	80

* The compounds numbered same as in Table I.

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