ported to possess appreciable hypoglycemic activity. Based on these observations, several indanamides like 1-*N*-alkylacetamidoindans[4] and 3-oxo-1-*N*-alkylacetamidoindans have been synthesized to evaluate their hypoglycemic activity. None of these compounds, however, possessed any hypoglycemic activity.

Experimental Section[5]

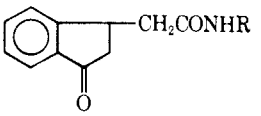
Methyl 3-Oxoindan-1-acetate.—3-Oxoindan-1-acetic acid[6] (27 g) was esterified with dry MeOH (90 ml) in the presence of dry HCl (6 g) by refluxing on a steam bath for 8 hr. The crude ester was crystd from EtOAc–petr ether (bp 40–60°) in 90% yield, mp 67–68°. *Anal.* ($C_{12}H_{12}O_3$) C, H.

3-Oxo-1-*N*-alkylacetamidoindan. A.—A mixt of methyl 3-oxoindan-1-acetate (1 mole) and the appropriate alkylamine (2 moles) was heated in a sealed tube on steam bath for 6 hr. The reaction mass was poured into H_2O, acidified with 2 *N* HCl, either filtered or extd (PhH), and washed (H_2O). The crude product was crystd from PhH–petr ether (bp 40–60°) as shining crystals.

b.—$SOCl_2$ (5 ml) was added dropwise to a mixt of 3-oxoindan-1-acetic acid[6] (3 g) and dry PhH (120 ml) with stirring till the evoln of HCl ceased. Approx 90 ml of PhH was distd off and the residual mass (3-oxoindan-1-acetyl chloride) was cooled in ice water. The cooled soln of 3-oxoindan-1-acetyl chloride (1 mole) was added dropwise under stirring to a soln of alkylamines (2.5 moles) in PhH (40 ml) with the simultaneous addn of 2 *N* NaOH to keep the mass alk. After stirring for 2 hr it was either filtered or extd (PhH), washed (H_2O), and purified by crystn from PhH–petr ether (bp 40–60°) as shining crystals (see Table I).

TABLE I

3-OXO-1-*N*-ALKYLACETAMIDOINDANS



R	Mp, °C	Empirical formula[c]
Me[a]	144–146	$C_{12}H_{13}O_2N$
Et[b]	120–121	$C_{13}H_{13}O_2N$
n-Pr[b]	116–118	$C_{14}H_{17}O_2N$
n-Bu[b]	97–98	$C_{15}H_{19}O_2N$

[a] Prepd from ester. [b] Prepd from acid chloride. [c] *Anal.* C, H, N.

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(4) A. U. De and B. Pathak, *J. Med. Chem.*, **13**, 152 (1970).

(5) Analytical results were within ±0.4% of the theoretical values. All melting points are uncorrected.

(6) R. H. Manske, *J. Amer. Chem. Soc.*, **53**, 1104 (1931).

Anti-*Trichinella spiralis* Activity of Some 1-Carbamoyl-3-methyl-2-pyrazolin-4,5-dione 4-Arylhydrazones

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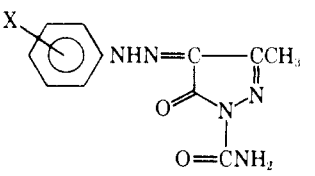
Heterocyclic compounds containing a carbamoyl group have been reported to possess various activities[1] due to their ability to inhibit acetylcholinesterase, probably by the transfer of a carbamoyl group to an active site of the enzyme. This report includes the potencies against *Trichinella spiralis* of several 1-carbamoyl-3-methyl-2-pyrazolin-4,5-dione 4-arylhydrazones which were described earlier in connection with our work on potential antidiabetics.[2]

The compounds were prepared as described previously[2,3] and were tested in mice and have shown the order of decreasing potency listed in Table I.

TABLE I

ANTI-*Trichinella* ACTIVITY[a]



No.	X	Mp, °C	Mean worm count Control	Mean worm count Drug	% reduction[a]
1	2-Cl-4-NO_2	210[b]	396	326	17.7
2	2,5-Cl_2	258–259[c]	396	388	2.0
3	2-Cl-6-Me	226[c]	396	394	0.5
4	4-NO_2	257–258[c]	495	536	0
5	2,6-Cl_2	200[c]	396	403	0

[a] Drug administration was po in Charles River Mice. Compound effectiveness was calcd as a percentage reduction based on the following formula. % reduction = 100 − [(Mean of medicated group worm count)/(mean of unmedicated control group worm count)]. [b] Ref 2. [c] Ref 3.

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(2) H. G. Garg and S. N. Mehra, *J. Indian Chem. Soc.*, **38**, 325 (1961).

(3) H. G. Garg and P. P. Singh, *J. Chem. Soc. C*, 1141 (1969).

Modified Syntheses of 2,4,5-Trihydroxyphenylalanine, 2,4,5-Trihydroxyphenethylamine, and Analogs[1]

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We are reporting new and more rewarding syntheses of 2,4,5-trihydroxyphenylalanine (I) (6-hydroxydopa),[2]

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(2) H. H. Ong, C. R. Creveling, and J. W. Daly, *J. Med. Chem.*, **12**, 458 (1969).