			Hydrochlorides			Bases		
R_1	R_2	R	Yield %	M.P. ° C.	Analyses % Cl	M.P. ° C.	Analyses % C	H
H	n-C_3H_7	C_6H_5	42	201–202	10·60 (10·77)	91–92	81·7 (81·9)	7·6 (7·9)
H	n-C_4H_9	C_6H_5	30	224–226	10·48 (10·34)	88–90	81·8 (82·1)	8·2 (8·1)
H	n-C_4H_9	p-$CH_3OC_6H_4$	25	167–168	8·89 (8·80)	..	..	..
H	n-C_6H_{13}	C_6H_5	40	192–194	9·40 (9·55)	110–112	82·2 (82·4)	8·6 (8·7)
H	n-C_6H_{13}	p-$CH_3OC_6H_4$	32	186–187	8·21 (8·22)	94–95	76·4 (76·0)	8·2 (8·4)
H	n-C_7H_{15}	C_6H_5	30	174–175	9·02 (9·21)	74–75	82·0 (82·5)	8·9 (8·9)
H	n-C_7H_{15}	p-$CH_3OC_6H_4$	23	193–194	8·05 (7·97)	..	..	..

acetate (1 mole) in glacial acetic acid (100 c.c.) was heated to boiling and set aside for 12 hours. The addition of ether and hydrochloric acid precipitated the piperidone hydrochloride. It was recrystallised from alcohol-ether mixture. The base was liberated by adding aqueous ammonia to a suspension of the hydrochloride in acetone and pouring the resulting solution into water. It was recrystallised from alcohol. Details regarding the 4-piperidones prepared and of the hydrochlorides obtained are listed in Table I. The quantities within brackets are those calculated from the formula.

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METABOLISM OF NICOTINIC ACID AND NICOTINAMIDE IN RICE MOTH LARVA (*Corcyra cephalonica* St.)

ALTHOUGH the metabolism of niacin has been studied quite extensively in many species of animals, not much is known about the metabolism of the vitamin in insects. Pearson *et al.*[1] have observed that carnivorous mammals excrete the vitamin mainly as N′-methyl nicotinamide, whereas herbivora lack the capacity to methylate niacin before excretion. The present work was carried out as a parallel to our studies[2,3] on the metabolism of trytophan in rice moth larva.*

The experimental diet was the same as described earlier,[4] supplemented separately with nicotinic acid and nicotinamide. Rice moth larvæ, 10-12 days old on whole wheat flour, were maintained on the experimental diets for a period of 4-6 weeks, at the end of which the larvæ had consumed the major portion of the diet. The excreta were collected from the residuary diets and separately extracted with water and the extracts concentrated *in vacuo* and taken up in 50-60 per cent. aqueous ethanol. After centrifugation, the clear supernatants were used for paper chromatography by the ascending technique,[5] against reference standards of nicotinic acid, nicotinamide, nicotinuric acid and N′-methyl nicotinamide. The organic phase of a mixture of n-butyl alcohol, methyl alcohol, benzene and water (2 : 1 : 1 : 1) used by Radhakrishnamurty and Sarma[6] for the resolution of the B vitamins gave the most satisfactory separation between nicotinic acid and nicotinamide, and hence was employed in the present study. The ternary nitrogen compounds were located on the chromatogram by the method already described[6] and N′-methyl nicotinamide was detected by the test employed by Reddi and Kodicek.[7] The R_f values of nicotinic acid, nicotinamide, nicotinuric acid and N′-methyl nicotinamide were 0·42, 0·75, 0·30 and 0·26 respectively.

The results obtained with the extracts of larval excreta showed that N′-methyl nicotinamide was completely absent; on the other hand, the excretory product was nicotinic acid irrespective of whether nicotinic acid or nicotinamide was fed to the larva. This observation indicates that methylation of niacin does not take place in the rice moth larva in contrast to the metabolic path-way in mammals, but that even nicotinamide is deamidated prior to excretion. An enzyme, capable of deamidating nicotinamide stoichiometrically to nicotinic

* While the present investigation was in progress, Kato (Kato, M., *Science*, 1953, **118**, 654) reported on the metabolism of nicotinamide in the herbivorous insect, *Bombyx mori*, and in the carnivorous insect, *Lucilia cæsar*, L., and demonstrated the absence of N′-methyl nicotinamide in their excretions.