also yielded the same amino acids which were obtained on acid hydrolysis of the peptide. It answered the Folin phenol reagent[10]. The above data suggest that the material in question may be a peptide containing iron-bound pteridine derivative.

The peptide can be reduced with cystine and can be oxidized with ferricyanide. Changes in spectral characteristics due to oxidation with ferricyanide and reduction with cysteine are given in Fig. 5. This property of the peptide suggests that it may function as an oxido-reductant in the system.

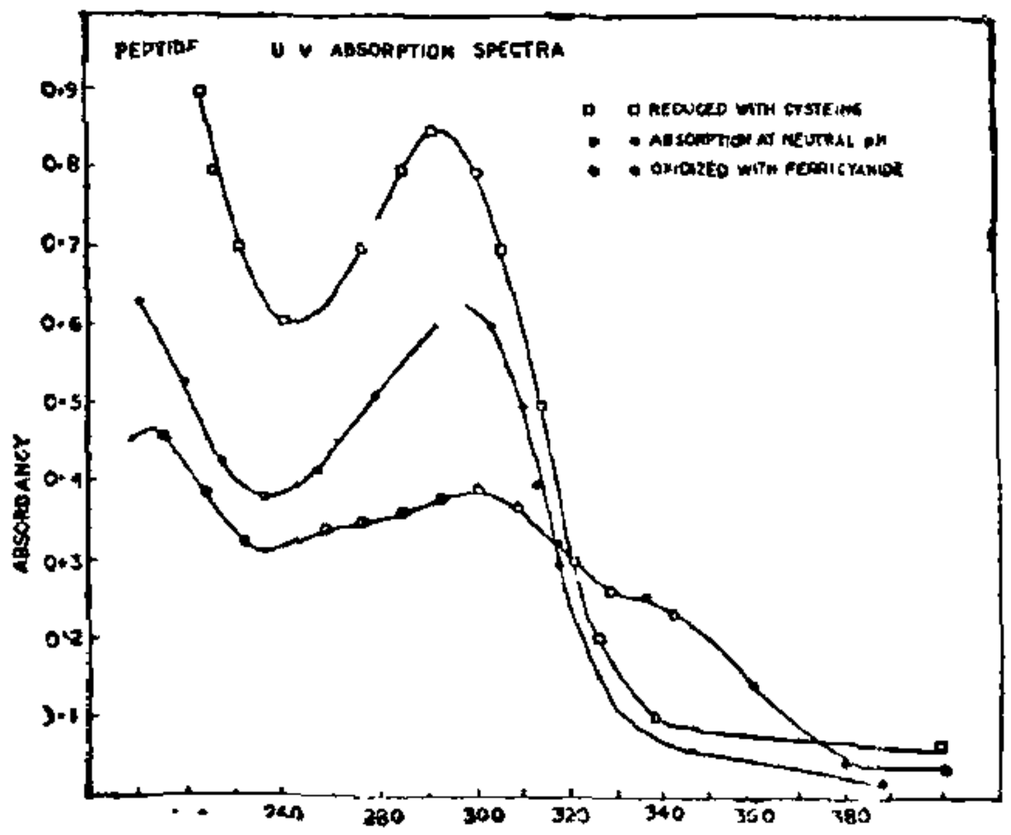

FIG. 5. Wavelength (nm).

It appears from the above that we have isolated a new type of peptide involved in oxidation-reduction in which pteridine derivative is present. At present we do not know the biological significance of this peptide.

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THYROID ACTIVITY AND THE NATURE OF ^{131}I UPTAKE IN THE POSTMETAMORPHIC *RANA HEXADACTYLA* LESSON

THYROID is an essential gland for amphibian metamorphosis. Activity of the thyroid gland is determined by its ability to incorporate radio iodine. Several reports are available on the activity of this gland in premetamorphic and prometamorphic larval stages of different species of amphibians[1]. Similar information is sparse in adult amphibia. The role of thyroid glands in the adult amphibians is doubtful. The physiological function of thyroid hormones upon the oxidative metabolism of amphibians is not clear[2]. Iwasawa[3] concluded from his experiments that thyroid is not an indispensable organ for adult anurans. In order to evaluate the thyroid activity in adult frogs, the present experiment was planned on postmetamorphic *Rana hexadactyla* Lesson.

All the experimental frogs were collected from the vicinity of Pondicherry in the month of June. Animals having a body weight ranging from 35 to 41 were selected for the experiment. After collection the animals were kept in aquarium tanks at 25° ± 2° C for a period of one week and during this period they were fed with earthworms *ad libitum*. Temperature, feeding and other husbandry conditions were uniformly maintained for all the frogs, since Iwasawa[3] noted that such parameters are sometimes responsible for changed thyroid physiology in amphibia. From such laboratory stock, frogs were taken on the basis of snout to vent length ranging from 40 mm to 90 mm at intervals of 2 or 3 mm. Frogs with snout to vent length 40 to 60 mm were considered youngest, immediately after metamorphosis. Five animals were taken for each experimental group. One μci of carrier free radio iodine ^{131}I was administered orally by a pipette through the gullet and ensured that nothing of the administered dose was rejected by the animal. Shaham[4] observed that the injected ^{131}I accumulated in the stomach region immediately after injection. Hence we decided to introduce the radioactive material orally. After twenty-four hours the animals were

decapitated and the thyroid in the hyoid region was removed along with some surrounding tissue, following the method of Gona[5]. The tissues were taken for a constant weight in all the experimental animals after autopsy and were extracted in alkali and counted thrice in a gamma-ray well type spectrometer. Results are expressed in per cent dose uptake. Correction was made for the background and also for any possible error resulting from radioactivity in the surrounding tissues. Results are summarized in Table I.

TABLE I

Group*	Snout to vent length mm	Body weight in grams	Thyroid uptake per cent value ± standard error
I	40–60	38 ± 3	5·107 ± 0·4185
II	61–75	,,	3·044 ± 0·3210
III	76–83	,,	2·821 ± 0·5122
IV	85–90	,,	0·979 ± 0·0315

* Groupings were made on the basis of results.

The above results indicate that thyroid is more active immediately after metamorphosis (40–60 mm S.V. Length) and then the activity gradually diminishes. Gorbman[6] observed a mild histological structure in the adult thyroid compared to a hyperactive picture in metamorphosing larvae. In neotenous Salamanders even though there is enough thyroxin secreted to elicit metamorphosis on other anurans, the larval tissues of the Salamanders are insensitive to thyroxin and undergo partial or no metamorphosis[7]. Growth hormone (STH) seems to serve no purpose in the adult human individual. Iwasawa[3] compared adult amphibian thyroxin to human growth hormone and says it is *hormone de luxe*.

In the light of the above findings it is concluded that in *Rana hexadactyla* the thyroid is active immediately after metamorphosis and this is followed by a sharp decline in the activity during subsequent stages of postmetamorphosis.

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CHANGES IN THE LEVELS OF AMINO ACIDS IN DEVELOPING *CORCYRA CEPHALONICA* STAINTON

INSECTS possess relatively high concentrations of free amino acids in their tissues and haemolymph[1]. Aspects of amino acid metabolism in insect development have been reviewed by several authors[2–4], and the variations in the levels of certain amino acids during development have been correlated with moulting, web formation, diapause, tanning etc. However, relatively little work has been done on the amino acid metabolism of insects, infesting stored grains. The present study has, therefore, been undertaken to obtain information on the changes in the concentrations of amino acids of *Corcyra cephalonica*, a pest of stored cereals, during larval growth and metamorphosis.

Corcyra cephalonica were reared on broken *Sorghum vulgare* grains[5]. Larvae weighing 10, 30, 40 and 55 mg, papae and freshly emerged adults were selected, and the amino acids were extracted from the insects with 3% (W/V) sulfosalicyclic acid[6]. The amino acid composition of the extracts were estimated in a Beckman Unichrom amino acid analyzer after hydrolysing them with 6 N HCl at 100° C for 24 hr. in vacuum sealed test tubes[5]. Web spun by the full grown (55 mg) larvae during 24 hr period was also collected, cleared of feacal pellets, weighed and used for acid hydrolysis.

Amino acid compositions of the whole body extract of the rice moth at different developmental period are shown in Table I. Glutamic acid and proline stand apart from the rest of the amino acids by virtue of their very high concentrations during larval growth period. The contents of these amino acids declined markedly during pupal period. The level of glutamic acid declined further at the adult stage. However, the level of proline was found to increase at the adult stage. The reduction in the concentrations of proline observed at the pupal period might be accounted in terms of its possible utilisation for the synthesis of