eyestalk extract injection[9]. Elevation in isocitrate and glucose-6-phosphate dehydrogenase activities on eyestalk ablation is also noticed in *Oziotelphusa senex senex* especially in the hepatopancreas. This provides further evidence for the endocrine control of oxidative enzymes and for the presence of an active principle that inhibits respiratory metabolism[6].

Eyestalk extracts stimulate oxygen consumption of muscle homogenates in *Astacus laptodactylus* and this could be due to its stimulating effect on TCA cycle enzymes[1]. In contrast, the activities of the oxidative enzymes such as isocitrate dehydrogenase, cytochrome oxidase, SDH and malate dehydrogenase increase upon destalking of this animal[3].

The respiratory metabolism in the crab, *Barytelphusa guerini* decreases on bilateral eyestalk extirpation and rises to normal levels upon injections of eyestalk extracts[5]. As a corollary to this the present study shows that the enzymes of glycolysis and Krebs TCA cycle undergo typical variations in relation to eyestalk ablation and injection of eyestalk extracts in all the four tissues studied. This permits us to suggest a possible basis for the variations in the metabolic rate in relation to eyestalk principle. The decrease in metabolic rate on eyestalk ablation may be due to suppression of the TCA cycle and acceleration of the glycolytic pathway. Conversely, restoration of metabolic rate on eyestalk extract injection may be due to acceleration of the TCA cycle and suppression of glycolytic pathway. It is possible that the eyestalk hormone facilitates the operation of the TCA cycle by favouring the entry of pyruvic acid into the TCA cycle. Low level of LDH activity prevents conversion of pyruvic acid to lactic acid and thus the glycolytic pathway is inhibited. High SDH activity at the same time promotes the operation of the TCA cycle by channelising more pyruvic acid into the TCA cycle by the formation of acetyl-co-A and citric acid.

The loss of metabolic acceleratory factor through eyestalk ablation results in increase in the LDH activity and decrease in SDH activity as well as the general metabolic rate. Its replenishment through the injection of eyestalk extracts into eyestalk ablated animals drops LDH activity and elevates SDH activity, which leads to restoration of general metabolic rate to the normal level. Thus the control of respiratory metabolism by the eyestalk principle may be due to its stimulatory effect on the enzymes of the TCA cycle and deceleratory or inhibitory effect on those of the anaerobic glycolysis.

Although this explanation looks sound further evidence by way of demonstration of variations in cytochrome oxidase, ATP levels and lactic acid levels etc would be helpful for confirming this view. Studies along these lines are yielding encouraging results. However, data obtained by the earlier workers support the present view that the neuroendocrine control of respiratory metabolism is achieved by the regulation of the activities of oxidative enzymes.

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## NEW RECORDS OF NATURAL ENEMIES OF *SPODOPTERA LITURA* (FAB.) IN KOLHAPUR, INDIA

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THE survey of natural enemies has immense value in biological control of pests. *Spodoptera litura* (Fab.)

**Table 1** *Natural enemies of Spodoptera litura (Fab.) in Kolhapur*

| Natural enemy | Family | State of attack | Reference No |
|---|---|---|---|
| *Campoletis chlorideae* Uchida | Ichneumonidae | L | New record |
| *Diadegma argenteopilosa* Cameron | Ichneumonidae | L | 2 |
| *Netelia ferruginea* Cameron | Ichneumonidae | L | 3 |
| *Eniscospilus* sp. | Ichneumonidae | L | New record |
| *Eucthromorpha* sp. | Ichneumonidae | P | 3 |
| *Apanteles prodeniae* Viereck | Braconidae | L | 4 |
| *A. colemani* Viereck | Braconidae | L | New record |
| *Microplitis prodeniae* R. sk. | Braconidae | L | 5 |
| *Tetrastichus ayyari* Rohwer | Eulophidae | P | 3 |
| *Trichospilus pupivera* Ferri | Eulophidae | P | 6 |

The order in all cases was Hymenoptera; L, larva; P, pupa.

is a polyphagous pest and is distributed almost all over India. The survey of natural enemies of this species was carried out during 1984–1986 by collecting its eggs, larvae and pupae. The cocoons of the parasitoids were also collected from the fields of Kolhapur. The laboratory screening showed four new parasitoids (table 1).

Parasitization by *C. chlorideae* was 60% as noted in the fields of tobacco in Kolhapur. Early second instar caterpillars were preferred for parasitization. *D. argenteopilosa*, *A. prodeniae* and *A. colemani* show about 20% parasitism while *Eniscospilus* sp. and *Eucthromorpha* sp. show less (5%) percentage of parasitism. *C. chlorideae*, *Eniscospilus* sp. and *Eucthromorpha* sp. are noted on *S. litura* for the first time in India[1].

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# NEWS

## FEW MINUTES FOR PROGNOSIS

It takes only one drop of blood to establish within a few minutes whether a person can work in conditions of increased temperature without harm to his health. A new express method for determining an organism's thermal resistance, proposed by scientists from the Research Institute of Labor Hygiene and Professional Diseases in Donetsk can give the answer on the basis of thermal hemolysis of red blood corpuscles.

The method will help not only to properly perform professional selection of miners for deep mines, steel workers, chemists, bakers and other workers whose job is connected with increased air temperature, but also to promptly determine the ability of non-trained people to carry out work in emergency situations. It is more reliable and quicker than the tests now carried out in thermal chambers or specialised suits. (*Soviet Features*, Science and Technology, Vol. XXVI, No. 94, August 12, 1987; Information Department, USSR Embassy in India, P.B. No. 241, 25 Barakhamba Road, New Delhi 110 001).

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