record of the host range of *P. armatissimus* and *Stenonabis tagalica*. Adults and nymphs of *Nabis* spp. are predaceous on a variety of preys including aphids, leafhoppers, lygus bugs, spider mites and small caterpillars[7].

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AMYLASE AND ACID PHOSPHATASE ACTIVITIES IN LUMINAL FLUID OF RAT

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THE luminal fluid is a secretion of the uterus that promotes sperm capacitation, blastocyst metabolism and implantation. Its physical and biochemical nature undergoes cyclic changes during the reproductive cycle. Luminal amylase helps in sperm capacitation[1], while acid phosphatase activity is very high in semen[2]. Hence it was decided to study amylase and acid phosphatase in luminal fluid of rat during the estrous cycle to identify the cyclic changes and their role in sperm survival.

Female albino rats of Sprague-Dawley strain (150 to 175 g body weight) showing normal estrous cycle were selected and maintained under uniform animal husbandry conditions. Four groups of six rats each belonging to four stages of the estrous cycle were sacrificed by cervical dislocation. Each of the two uterine horns of each rat was flushed with 1 ml of normal saline and the flushings of both horns were pooled together to form one sample. Samples thus collected were processed for biochemical analysis of amylase[3] and acid phosphatase[4].

Table 1 *Amylase and acid phosphatase activities of rat luminal fluid during different stages of the estrous cycle*

Stages	Amylase (mg/h/100 ml)	Acid phosphatase (mg/h/100 ml)
Proestrus	25.00 ± 5.00* (6)	3.50 ± 1.23 (6)
Estrus	21.66 ± 9.08 (6)	5.50 ± 1.56 (6)
Metestrus	48.33 ± 25.09 (6)	1.80 ± 0.68 (6)
Diestrus	24.33 ± 7.26 (6)	3.20 ± 0.59 (6)

*Mean ± S.E. with number of samples in parentheses.

As amylase influences sperm capacitation[1], the lowest value at estrus is due to the increased utilization[5] of amylase at this stage, and also due to the dilution effect of luminal fluid which retains water to its maximum at estrus. This is further supported by the fact that amylase levels in human cervical fluid are inversely related to estrogen[5]. Hence the maximum amylase activity in luminal fluid of rat during metestrus is due to the decline in the endogenous estrogen.

The maximum acid phosphatase activity at estrus suggests that this might be due to the maximum level of endogenous estrogen[6]. Ultrastructural studies indicated that hyperestrogenism induced an increase in acid phosphate[7] activity in primary lysomes of endometrium. Significant decline in the activity at metestrus is due to the decline in endogenous estrogen.

It is interesting to note that the acid phosphatase activity is very high in semen[2]. It is possible that high acid phosphatase activity in luminal fluid at estrus (like that in semen) may make this fluid milieu conducive for sperm survival. Therefore, it is concluded that amylase and acid phosphatase activities at estrus and metestrus are negatively correlated.

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LETHAL TOXICITY OF LEAD NITRATE TO *TETRAHYMENA PYRIFORMIS*

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LEAD is a common heavy metal and its toxicity to man has been known for centuries[1]. Lead accumulates in bones and tissues, and in high concentrations causes anemia[2], impairment of the function of liver, kidney and spleen, spinal deformities[3] and death[4]. Concentration of lead is steadily increasing in rivers, lakes and oceans. In view of the general interest of environmental contamination by heavy metals their effect on living cells is of interest[5,6]. Lead is very toxic to most plants, moderately toxic to animals[5,6] where it acts as a cumulative poison, and quite toxic to aquatic organisms[7]. Surprisingly, although aquatic micro-organisms are probably of greater value to industry than fish, pollutant-caused killing of fish attracts considerably more attention[8].

The waste assimilation capacity of a stream or lake depends in large part on the protozoan population since it is the protozoans that face the initial and most important attack upon wastes entering the water body. *Tetrahymena pyriformis* Ehrenberg, a ciliate protozoan, occurs world-wide in a variety of freshwater habitats. Its structure, physiology and biochemistry have been extensively studied[9].

As a part of a detailed eco-toxicological study of the effect of 13 heavy metals on *T. pyriformis* the effect of the pollutant lead nitrate was evaluated in terms of toxicity, stimulation, inhibition, destruction and alteration under conditions of short exposure of

Table 1 *Changes in morphology and motility of T. pyriformis exposed to lead nitrate*

Toxicant conc. (mg/l)	Exposure (min)	General appearance	Motility
200	30	80% Lysed 20% Phase I	Increased and, then decreased
100	30	25% Phase I 75% Phase III	Increased, then normal
	60	15% Lysed 25% Phase I 60% Phases II & III	Normal
	150	50% Lysed 40% Phase I 10% Phase III	50% immobile to reduced
	300	Occasional lysing 20% Phase I, 75% Phase III	Reduced
80	30	No change	Normal
	60	No change	Normal
	150	25% Phase I 75% Phase III	Normal to reduced
	300	30% Lysed 20% Phase I 50% Phase III	50% immobile or else normal and slightly reduced.