Host and Locality : ***Aetobatis narinari*** (Euphrasan), entire fish weighing 30 kg. Bay of Bengal, Porto Novo (11° 29′ N 79° 49′ E).

Location : Inner wall of the intestine.

Three specimens ranging from 0·83 to 1·03 mm in width were collected from the intestine of the host. Body linear, striated with six terminal lips. Head bulbs well developed with 27 rows of hooks. Four thin neck glands, and eight pairs of minute papillae with a well-developed proximal pair present on sides of body.

Echinocephalus uncinatus (Molin, 1858)

Material : One male, 13 mm in length collected on December 10, 1971.

Host and Locality : ***Aetobatis narinari*** (Euphrasan). 24 kg in weight; Bay of Bengal, Porto Novo.

The nematode was found attached to the inner wall of the stomach, coiled up in an ovoid cyst. Body smooth with no trace of annulations and measured 0·5 mm in width; head bulb with 6 transverse rows of hooks. Neck glands straight and devoid of swellings.

E. spinosissimus (Linstow, 1905) has so far been reported only from Ceylon waters[2,3]. Molin[2] first described the species from *Trygon* spp. under the name *E. uncinatus* and later Linstow[3] reported the occurrence of this species from *Myliobatis aquila* and *Trygon* spp., but under the name *Cheirocenthus spinosissimus*. This species has not so far been reported from Indian waters.

E. uncinatus has been reported to occur in *Trygon* and *Myliobatis*[2 6 5] in gastropods[6] and in Scianeid fishes[7], in Indian waters. The present records its occurrence from a new host, *viz.*, *Aetobatis narinari* which probably forages on gastropods. In this context it may be relevant to refer to Anantaraman's[6] report on the occurrence of *E. uncinatus* in marine gastropods. Possibly the marine gastropods serve as the intermediate hosts.

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GIANT CELLS FORMATION IN THE TESTES OF HOUSE SPARROW *PASSER DOMESTICUS* (LINN.) BY COBALT-60 EXTERNAL IRRADIATION

It has been observed that irradiation causes the formation of giant cells in the testes of mammal[1-3]. As there is paucity of such information in birds, the present investigation is to study the effect of Cobalt-60 irradiation on the testes of the House Sparrow *Passer domesticus*. The whole body of these birds was exposed to external irradiation of Cobalt-60 at varying doses of 475 r, 712 r and 950 r at the rate of 100 r/h from a distance of 1 foot and autopsied on days 1, 2, 3, 7 and 15. The testes were fixed in Bouin's fluid, sectioned at 5 μ thickness and stained with Ehrlich's haematoxyline and PAS for histological observations.

The giant cells could not be observed after 475 r dose, but with the increase in the dose, the cells began to cluster and at 950 r many bi- and multinucleated giant cells were located. The clustering phenomenon appeared to start when the testes were irradiated by 712 r and autopsied on 3rd day, when many cells began to coalesce and formed binucleated or multinucleated giant cells having a common cytoplasmic pool (Fig. 1).

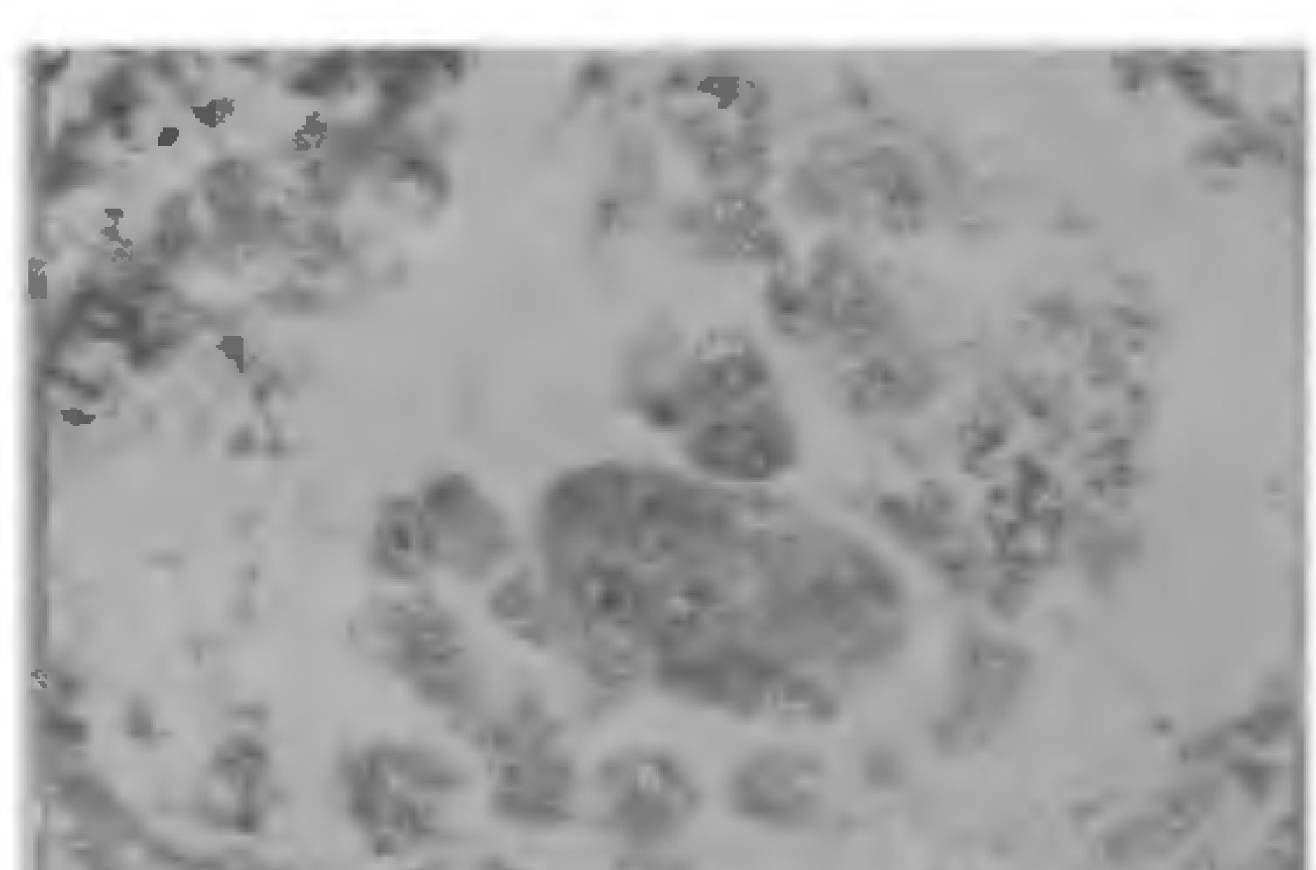

Fig. 1. Seminiferous tubule of the testes of male house sparrow *Passer domesticus* showing multinucleated giant cell, 10 × 70.

No hypertypic giant cells could be seen as reported in mammals by other workers[4 5]. Most of the multinucleated giant cells were derived from the spermatocytes asd rarely from the young spermatids. The mode of formation of these cells as observed during the present investigations was due to the fusion of the cleaving cells. Rao and Srivastava[5], had suggested that giant cells could be formed by cell fusion, possibly by fatty degeneration of cell membrane. Montgomery *et al.*[6], had also reported that giant cells were formed by the fusion of the plasma membrane.

According to Amoroso[7], the giant cells were generally formed because of the macrophages which swell the young developing spermatids.

The present observations indicate the lag effect due to irradiation thus interfering with the regular spermatocytic divisions and thereby causing the fusion instead of forming the spermatids. The detailed chemical sequence will be published eslewhere.

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CYTOLOGICAL STUDIES IN ATEMOYA (*ANNONA ATEMOYA* HORT.)

ATEMOYA is a hybrid between Cherimoya (*A. cherimola* Mill.) and Custard apple (*A. squamosa* L.). Atemoya is a distinct improvement in respect of seedlessness and fruit quality on either of the parents. The low bearing habit of this crop is considered to be its greatest drawback. The studies on cytological aspects, *viz.*, pollen sterility, pollen germination and meiosis were undertaken to know the cytological reasons associated with low fruit set.

The pollen sterility, in the present study, was high (Table I), during May and June when the temperature was high and humidity low. Thakur and Singh[1] observed that the pollens were not fertile till the end of July.

TABLE I
Pollen sterility in Annona atemoya

Month	% of sterile pollens	Monthly Av. Temp. in °C Max.	Monthly Av. Temp. in °C Min.	Av. Relative Humidity %
May	58	39	17	38
June	55	37	15	36
July	33	34	14	66
August	30	31	13	74

The pollen grain germination was tried in sucrose solution (10, 15, 20 and 25%), *plus* agar-agar (1%), stigmatic secretion of *A. atemoya, A. squamosa* and *A. atemoya plus A. squamosa,* Gibberellic acid (10, 25, 50 and 75 ppm) and water. The maximum pollen germination (8·6%) was observed in stigmatic secretion of *A. atemoya.* The low pollen germination may be due to the compound nature of pollen grain with thick exine. Thakur and Singh[1], reported 11·6% pollen germination in 20% sucrose solution.

The flower buds for meiotic studies were fixed in propiono-acetic alcohol and squashed in 1% propiono-carmine. The meiotic study confirms $n = 7$ as chromosome number of Atemoya. The regular meiosis was observed in only 52% of the cells (Table II). The presence of univalents was due

TABLE II
Chromosomal associations at Diakinesis and Metaphase in Annona atemoya

No. of PMC's observed	Chromosomal bodies	Univalents	Bivalents	% of particular association
4	9	4	5	16
3	8	2	6	12
1	13	12	1	4
2	14	14	0	8
1	10	6	4	4
13	7	0	7	52
1	11	8	3	4