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On a new coccidium *Eimeria koormae* n. sp. from the intestine of Indian tortoise, *Lissemys punctata* Smith.

By

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With 8 figures in the text.

Introduction.

In June, 1936, while examining the gut contents of tortoise *Lyssemys punctata* Smith brought from Jessore, Bengal, for protozoa, two of the animals were found to harbour a coccidium belonging to the genus *Eimeria*. From the literature on the subject it was found that the following species of *Eimeria* were previously recorded from *Chelonia*: (1) *E. delagei* Labbe (1893) from *Emys orbicularis*; (2) *E. mitraria* Laveran and Mesnil (1902) from *Damonia reevesii*; (3) *E. legeri* Simond (1901) from *Cryptopus granosus* (*Emyda granosa*).

The Oocysts of *E. mitraria* Laveran and Mesnil, have a peculiar character in being serrated at the end and the complete cycle of development occurs outside the cells in the lumen of the intestine. *E. legeri* Simond, completes its developmental stages in the liver cells of the host and Oocysts come out into the intestine by the bileduct. The coccidium observed by the present writer is solely confined to the cells of the intestine — the schizogony — took place in the epithelium, while all other endogenous stages occurred in the sub-epithelium. Moreover it differed from the above mentioned species in its size, and nature of the Oocyst. The name *E. koormae* n. sp. is proposed for this new coccidium.

Material and methods.

Unsegmented Oocysts were recovered directly from the voided faeces and from the rectal contents. The further development of the Oocyst was observed from time to time in one percent chromic acid solution in distilled water. For studying the morphological details of the coccidium, portions of the intestine were fixed in Bouin-Duboscq Brasil's fluid and subsequently sections were cut 6 μ thick and stained in HEIDENHAIN'S iron alum haematoxylin. Measurements and camera lucida drawings of the Oocysts in its various stages of development, were taken from smear and from specimens in the chromic acid solution.

Observation on *Eimeria koormae* n. sp.

a) Schizogony.

The young schizont in the early stage is round and measures 2×2 μ (Fig. 1). The fully mature one (Fig. 2) is astonishingly small in size and measures 4.12 μ in diameter. It is completely spherical and contains eight merozoites each measuring 1.5×1.0 μ.

b) Sporogony.

It was not possible to find out the difference between a microgametocyte and a schizont at an early stage. But when it had grown bigger at a later stage, the nucleus of the microgametocyte split up into large number of smaller nuclei (Fig. 3) which ultimately gave rise to many microgametes clustering round a residual mass of cytoplasm (Fig. 4).

The macrogametocyte contains darkly stained granules in the cytoplasm even at a very early stage (Fig. 5) and is spherical in shape. When fully formed it measures 12.36 μ (Fig. 6) in diameter.

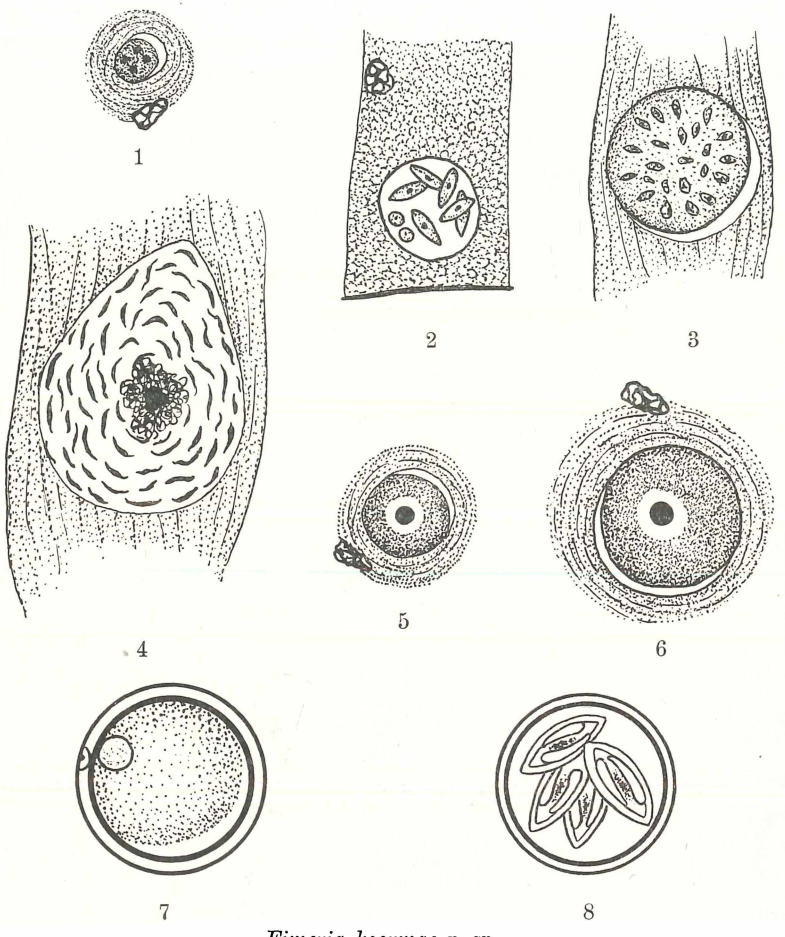
The completly spherical unsegmented Oocysts (Fig. 7) measuring 14 μ in diameter are found in the faeces and rectal contents. When kept in 1 % chromic acid solution, they completed their development in 2—3 days. The Oocysts has a pseudomicropyle but no oocystic residue is present. The Oocyst is double walled, the inner being more prominent than the outer one.

Sporocysts are spindle shaped and measure 10×4.5 μ (Fig. 8). A sporocystic residue is present and the sporozoites have one end rounded and stouter than the other.

Diagnosis: Systematic position — *Eimeria koormae* n. sp. (coccidiida, Eimeriidae).

Explanation of figures.

The figures were drawn with the aid of camera lucida and the magnification is × 1666. Figures 1—6 were made from sections of the intestine stained in iron-alum haematoxylin. Figures 7 and 8 were made from material kept in chromic acid solution.



Eimeria koormae n. sp.

Fig. 1. Dividing schizont at an early stage. / Fig. 2. A group of mature merozoites. / Fig. 3. Early stage of microgamete formation. / Fig. 4. Mature microgametes clustering round a residual mass. / Fig. 5. Macrogametocyte — early stage. / Fig. 6. A mature macrogametocyte. / Fig. 7. Unsegmented oocyst with a pseudomicropyle. / Fig. 8. Mature oocyst.

Oocysts thick walled, completely spherical, 14 μ in diameter; pseudomicropyle present; oocystic residue absent; sporocysts spindle-

shaped, 10 $\mu \times 4.5$ μ; sporocystic residue present; unsegmanted Oocysts discharged from host; sporulation time 2–3 days. The table below compares the known species of *Eimeria* recorded from *Chelonia.*

Differential diagnosis of the species of Eimeria recored from *Chelonia.*

Name	Host	Seat of infection	Oocyst, dimentions in microns.
E. delagei Labbe, 1893	*Emys orbicularis*	Intestine	22×16—17
E. mitraria Laveran and Mesnil, 1902	*Damonia reevesii*	Intestine	10×15
E. legeri Simond, 1901	*Cryptopus granosus* (*Emyda granosa*)	Liver	Not given.
E. koormae n. sp.	*Lissemys punctata*	Intestine	14×14

Habit — Small intestine (schizogony in the epithelium and other endogenous stages in the sub-epithelium) of tortoise, *Lissemys punctata*

Locality — Jessore, Bengal, India.

References.

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