Nomenclatural correction – *Eimeria chalcides* (Probert, Roberts & Wilson, 1988) n. comb. for *Tyzzeria chalcides* (Apicomplexa: Eimeriidae)

S.J. Ball¹, P. Daszak¹ and A. J. Probert²
¹Department of Life Sciences, University of East London, Romford Road, London E15 4LZ, UK
²School of Biological Sciences, University College of North Wales, Bangor, Gwynedd LL57 2UW, UK

Accepted for publication 14th April, 1993

Abstract

The following nomenclatural correction is made: a new combination, *Eimeria chalcides* (Probert, Roberts & Wilson, 1988) for *Tyzzeria chalcides* Probert et al., 1988 from the ocellated skink *Chalcides ocellatus*. The sporulated oöcyst is redescribed and compared with other *Eimeria* spp. reported from the family Scincidae in order to verify the species. Oöcysts of *E. chalcides* are cylindrical, 35 × 18.6 (32–37 × 17–20.5) μm with a thin bi-layered wall; the shape-index (mean length/mean width) is 1.88. A micropyle, oöcyst residuum and polar granule are absent. The sporocysts are broadly ellipsoidal, 11.9 × 8.9 (8.5–13 × 7.5–11) μm and without a Stieda body; the shape index is 1.35.

Introduction

In 1988, Probert, Roberts and Wilson gave the name *Tyzzeria chalcides* to a coccidium developing in the epithelial cells of the bile-ducts and gall-bladder of the ocellated skink *Chalcides ocellatus* from Egypt. We have re-examined the sporogony of this parasite, which shows that it should be transferred to the genus *Eimeria* Schneider, 1875 (Fig. 1). This supports the assumption made by Paperna & Landsberg (1989), who did not have the opportunity to examine or redescribe the oöcyst.

Materials and methods

Ocellated skinks *Chalcides ocellatus* were obtained from Egypt in 1979 and maintained in a breeding colony. Unsporulated oöcysts were isolated from the gall-bladders of individual ocellated skinks and sporulated in 2% potassium dichromate at 18°C.

*Eimeria chalcides* (Probert, Roberts & Wilson, 1988) n. comb.

Description of oöcysts (Fig. 1)

Sporulated oöcysts cylindrical, with rounded ends, 35 × 18.6 (32–37 × 17–20.5) μm (n = 50); shape-index (SI) (length/width) 1.88. Wall bi-layered, colourless and smooth. No micropyle, oöcyst residuum or polar granule. Sporocysts broadly ellipsoidal, 11.9 × 8.9 (8.5–13 × 7.5–11) μm (n = 50); SI 1.35, with smooth, thin and bivalved walls. Stieda body absent; sporocyst residuum present, consisting of compact cluster of large granules. Sporozoites 13.7 × 4.9 (13.5–14 × 4.5–5) μm (n = 50). Sporulation is endogenous.
Figs 1–2. Photomicrographs of oocysts of *Eimeria chalcides* n. comb. from the gall-bladder of the ocellated skink *Chalcides ocellatus* (×1,600). 1. Fully-sporulated oocyst 6 days after removal from gall-bladder. 2. Oocyst after storage for 15 days showing splitting of sporocyst wall at valves. Abbreviations: S, sporocyst; Sr, sporocyst residuum; Sw, sporocyst wall; Sz, sporozoite.

**Remarks**

In contrast to avian and mammalian coccidia, the sporocyst walls of many reptilian eimerians tend to collapse or split more readily within the oocyst and this may confuse identification. Sporocyst splitting in the oocyst of *E. chalcides* n. comb. occurred as early as 10 days after sporulation (Fig 2). We have also observed this to happen in sporulated oocysts of other intestinal and gall-bladder *Eimeria* spp. of reptiles from 2–3 weeks after being passed in the faeces. This phenomenon has been noted by other workers, e.g. Upton & Barnard (1987) in *E. brygooi* Upton & Barnard, 1987 from *Phelsuma madagascariensis grandis*, and Paperna & Landsberg (1989) in *E. (syn. Acroei-meria) lineri* McAllister, Upton & Fried, 1988 and *E. (syn. Choleoeimeria) turcicus* McAllister, Upton & Fried, 1988, both from *Hemidactylus turcicus*.

When describing new species of *Eimeria*, it is reasonable to assume that the parasite might be able to infect different host species of the same genus, but not be transferred between genera of one family. Because of the lack of information on cross-transmission of reptile coccidia, however, comparison with other coccidia from the same host family is necessary. Of the 12 named *Eimeria* spp. recorded from the family Scincidae, five have endogenous development in the intestinal epithelium. These are: *E. maboia* Carini, 1938 from *Mabouia* sp.; *E. minetti* Ray, Raghavachari & Sapre, 1942 from *Mabouia* sp.; and *E. ablephari*, *E. lampropholidus* and *E. leiopismatis* all from *Ablepharus boultonii* and described by Cannon (1967). All of these intestinal coccidia have oval to ovoid oocysts, thus further distinguishing them from *E. chalcides*. Oocysts of *E. sami* Bovee, 1971 from *Eumeces oshimensis* and *Eimeria beyerae* Ovezmukhammadov, 1977 from *Ablepharus deserti* are spherical and oval respectively, and can therefore be distinguished from *E. chalcides*.

Five other *Eimeria* spp. from the Scincidae have cylindroidal oocysts and can be distinguished from *E. chalcides* on the basis of measurements and sporocyst morphology. *E. egerniae* from *Eger-nia whitii* has smaller oocysts and sporocysts than *Eimeria chalcides*, with no overlapping of size ranges (Cannon, 1967). *E. pellopleuris* Bovee, 1971 from *Lygosoma pellopleurum* also has smaller oocysts and sporocysts, with no overlap of the oocyst and sporocyst width ranges (Bovee, 1971). Oocysts of *E. scinci* (Phisalix, 1923) Levine & Becker, 1933 from *Scincus officinalis* have a similar length to *E. chalcides*, but are much wider (25 μm) when fully sporulated (Phisalix, 1923). Sporocysts are larger and contain a disseminated residuum compared to *E. chalcides*. The oocyst of *E. baltrocki* Daszak & Ball, 1991 from *Eumeces schneideri* is longer than that *Eimeria chalcides*, with little overlapping of length ranges. *E. bal- trocki* can further be distinguished by the presence of a polar granule and larger, globular sporocyst residuum obscuring more of the sporozoites.