ACTA PALAEONTOLOGICA POLONICA

A new oospecies of Faveoloolithidae from the Xixia Basin, Henan Province, China and the revision of *Parafaveoloolithus*

Qing He, Shutong Li, Shukang Zhang, Yifan Huang, Xiqiang Cao, Hongqing Li, and Mengyuan Zhu
Acta Palaeontologica Polonica 70 (4), 2025: 795-810 doi:10.4202/app.01221.2024

Parafaveoloolithus is an oogenus within Faveoloolithidae, comprising oospecies with uncertain parataxonomic status due to ambiguous microstructures. The revision of problematic taxonomy and the identification of new materials in *Parafaveoloolithus* can make the classification of *Parafaveoloolithus* more accurate. Here, we described a new clutch containing 13 dinosaur eggs from the Upper Cretaceous Zhaoying Formation in the Xixia Basin, Henan Province, China by macroscopic measurement and microscopic observation (PLM, CL and SEM). Compared with other oogenera of Faveoloolithidae, these specimens could be assigned to *Parafaveoloolithus* based on the subspherical shape, columnar eggshell units and partially developed secondary eggshell units. A new oospecies of *Parafaveoloolithus, Parafaveoloolithus xixiaensis*, was further erected on the basis of the subspherical shape (average 84 in shape index), small size (average 132.4 mm in length and 111.3 mm in width), the parallelly arranged slender eggshell units with a width of 0.05–0.11 mm and wide pore canals with a width of 0.10–0.23 mm in the radial sections, as well as the honeycomb- like structure in the tangential sections. Radial sections of *P. xixiaensis* oosp. nov. show a single structural layer composed of columnar eggshell units and straight pore canals; some secondary eggshell units are present in the radial sections. The parataxonomy of *Parafaveoloolithus guoqingsiensis* is revised to *Propagoolithus guoqingsiensis* based on the branched eggshell unit and smaller pores near the outer surface of the radial section, and the smaller eggshell thickness. *Duovallumoolithus* is considered an invalid oogenus in Faveoloolithidae, and *Duovallumoolithus shangdanensis* is assigned to the new combination *Parafaveoloolithus shangdanensis*. The geographic distribution of Faveoloolithidae is mainly restricted to China, Mongolia and South Korea of East Asia, and *P. xixiaensis* oosp. nov. provides new material and a complete clutch of *Parafaveoloolithus*. The assignment of *Parafaveoloolithus* provides important references for the study of parataxonomy, geographical distribution and clutch structure in Faveoloolithidae.

Key words: Dinosauria, Faveoloolithidae, eggs, Upper Cretaceous, Zhaoying Formation, Xixia Basin.

Qing He [heqingzjb@163.com; ORCID: https://orcid.org/0009-0001-1168-5397], Shutong Li [lishutong0719@163.com; ORCID: https://orcid.org/0009-0004-7895-8769

], Hongqing Li [lhq505131@163.com; ORCID: https://orcid.org/0009- 0002-2974-775X
], and Mengyuan Zhu [zmy622085@163.com; ORCID: https://orcid.org/0009-0002-5112-8920
], School of Resources and Environmental Engineering, Anhui University,
111 Jiulong Street, Hefei, Anhui Province, China. Shukang Zhang [zhangshukang@ivpp.ac.cn
; ORCID: https://orcid.org/0009-0007-1830-1003], Institute of Vertebrate
Paleontology and Paleoanthropology, Chinese Academy of Sciences, 142
Xizhimenwai Street, Beijing, China. Yifan Huang [dzzxkjxxk@163.com
; ORCID: https://orcid.org/0009-0003-0106-1526], The Prevention and Control
Center for the Geological Disaster of Henan Geological Bureau, 28 Jinshui Street,
Zhengzhou, Henan Province, China. Xiqiang Cao [914272772@qq.com
; ORCID: https://orcid.org/0009-0001-6828-1051], Henan Scientific Academy of Land and Resources, 41
Huanghe Street, Zhengzhou, Henan Province, China.

This is an open-access article distributed under the terms of the Creative Commons
Attribution License (for details please see creativecommons.org), which permits unrestricted use,
distribution, and reproduction in any medium, provided the original author and source are credited.

Full text (1,890.1 kB)