

Validation of the names of some species of Zygosphaera KAMPTNER
by Berit Riddervold Heimdal

It has been brought to my attention by Dr. R. E. Norris that the genus name Laminolithus which was proposed in HEIMDAL & GAARDER (1980) is a synonym of Zygosphaera KAMPTNER and invalid under ICBN Art. 52. Therefore, the diagnosis of Zygosphaera is emended, and the genus name Calyptrolithina is proposed for Z. divergens HALLDAL & MARKALI which shows characters excluding it from the emended Zygosphaera.

Zygosphaera KAMPTNER emend. HEIMDAL
KAMPTNER 1936, p. 244.

Diagnosis

Coccolith case subspherical, dimorphic. Solidly constructed disc-shaped coccoliths (laminoliths) of regular calcite rhombohedrons placed in layers parallel to coccolith bottom, with or without perforations approximately normal to bottom, sides slightly tapering conically towards proximal end. Distal surface of ordinary coccoliths usually flat with central knob or thin ridge of microcrystals. Stomatal coccoliths (zygoform laminoliths) with high transverse, pointed ridge, with or without perforations.

Type: Zygosphaera hellenica KAMPTNER (SD: LOEBLICH & TAPPAN 1963, p. 194).

Testa coccolithica subsphaerica, dimorpha. Coccolithi (laminolithi) discoformes solide constructi rhombohedris calcitis regularibus laminis fundo coccolithico parallelis positus, cum vel sine perforationibus fere fundo normalibus, lateribus conice se ad finem proximalem modice minuentibus. Superficies distans coccolithorum ordinariorum fere plana cum bulla centrali vel microcrystallorum dorso tenui instructa. Coccolithi stomatales (laminolithi zygoformes) dorso transverso acuminato, cum vel sine perforatione instructi. Typus: Zygosphaera hellenica KAMPTNER (SD: LOEBLICH & TAPPAN 1963, p. 194).

Zygosphaera bannockii (BORSETTI & CATI) HEIMDAL n. comb.
Basionym: Sphaerocalyptra bannockii BORSETTI & CATI, 1976,
p. 212, pl. 13, figs. 4-6. Synonym: Laminolithus bannockii
(BORSETTI & CATI) HEIMDAL, HEIMDAL & GAARDER 1980, p. 8,
pl. 2, fig. 18.

Zygosphaera hellenica KAMPTNER, 1937, p. 306, pl. 16,
figs 27-29. Synonym: Laminolithus hellenicus (KAMPTNER)
HEIMDAL, HEIMDAL & GAARDER 1980, p. 8, pl. 3, figs 19-21.

Zygosphaera marsilii (BORSETTI & CATI) HEIMDAL n. comb.
Basionym: Sphaerocalyptra marsilii BORSETTI & CATI, 1976,
p. 212, pl. 13, figs 7-10. Synonyms: Corisphaera gracilis
KAMPTNER, BORSETTI & CATI 1976, p. 218, pl. 15, fig. 9;
C. aff. gracilis KAMPTNER, BORSETTI & CATI 1976, p. 218,
pl. 15, figs 10, 11; Laminolithus marsilii (BORSETTI & CATI)
HEIMDAL, HEIMDAL & GAARDER 1980, p. 8, pl. 3, figs 22, 23;
? Zygosphaera amoena KAMPTNER, 1937, p. 305, pl. 16, figs 24-26.

Calyptrolithina HEIMDAL n. gen.

DERIVATION OF NAME: Greek kalyptra, cap-shaped covering; Greek
lithos, stone; referring to the calypetroform ordinary cocco-
liths.

Diagnosis

Coccolith case subspherical, dimorphic, with distinct flagellar
area. Ordinary coccoliths calyptroliths, proximal part consist-
ing of a basal ring which bears a tube widening distally;
central part highly vaulted, surrounded at base by the distal
crystal rings of the tube. Proximal ring, tube and central
part formed by a single layer of microcrystals arranged in
the usual hexagonal pattern, second crystal ring from distal
margin of tube with a regular row of holes, most easily seen
in distal view. Stomatal coccoliths zygoliths with high,
pointed bridge normal to long axis of coccolith.

Type: Calyptrolithina divergens (HALLDAL & MARKALI) HEIMDAL
n. comb.

Testa coccolithica subsphaerica, dimorpha, area flagellari distincta. Coccolithi ordinarii calyptrolithi, parte proximali anulo fundi tubum se in exteriorem partem dilatantem ferente constante; pars centralis alte convexa, in basi anulis tubi crystallorum distantibus circumdata. Anulus proximalis, tubus parsque centralis una microcrystallorum lamina ordine hexagonali usitato formata consistunt, crystallorum anulo secundo a margine tubi distante cum foraminum serie regulari, facillime e distante visu. Coccolithi stomatales zygolithi cum ponte alto acuminato axi longo coccolithico directo.

Typus: Calyptrolithina divergens (HALLDAL & MARKALI) HEIMDAL n. comb.

Calyptrolithina divergens (HALLDAL & MARKALI) HEIMDAL n. comb.
Basionym: Zygosphaera divergens HALLDAL & MARKALI 1955, p. 8, pl. 2.

Calyptrolithina divergens f. tuberosa (HEIMDAL) HEIMDAL n. comb.
Basionym: Zygosphaera divergens HALLDAL & MARKALI f. tuberosa HEIMDAL, HEIMDAL & GAARDER 1980, p. 12, pl. 3, fig. 25.

Table 1. Coccolith type in the holococcolithophorid genera studied in HEIMDAL & GAARDER (1980).

Genus/ type species	Coccolith case	Coccolith type	Coccolith type	
			Ordinary coccoliths	Stomatal coccoliths
<u>Crystallolithus</u> <u>C. hyalinus</u>	Monomorphic	Crystallolith		
<u>Syracolithus</u> <u>S. dalmaticus</u>	Monomorphic	Laminolith		
<u>Zygosphaera</u> <u>Z. hellenica</u>	Dimorphic		Laminolith	Zygoform laminolith
<u>Calyptrosphaera</u> <u>C. globosa</u>	Monomorphic	Calyptrolith		
<u>Sphaerocalyptra</u> <u>S. quadridentata</u>	Dimorphic		Calyptrolith	Calyptrolith
<u>Calyptrolithophora</u> <u>C. papillifera</u>	Dimorphic		Calyptrolith	Calyptrolith
<u>Calyptrolithina</u> <u>C. divergens</u>	Dimorphic		Calyptrolith	Zygoolith
<u>Homozygosphaera</u> <u>H. spinosa</u>	Monomorphic	Zygoolith		
<u>Corisphaera</u> <u>C. gracilis</u>	Dimorphic		Zygoolith	Zygoolith
<u>Helladosphaera</u> <u>H. cornifera</u>	Dimorphic		Zygoolith	Helladolith
<u>Periphyllophora</u> <u>P. mirabilis</u>	Monomorphic	Helladolith		

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