

金綱善恭[†]・山岸高旺：デスマッド類の接合胞子 2

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Zygosporae of Desmid 2

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In the present paper, zygosporae of 32 species of desmid genus *Cosmarium* were reported. The samples observed in this study were collected from Cambodia, Thailand and Japan by Y. Kanetsuna, from Malaysia and New Guinea by Yamagishi. And other samples were collected from Brazil by E. Saito and from Florida, U. S. A. by A. M. Scott.

Key Index Words: desmid, zygospore.

前報ではデスマッドの *Actinotaenium*, *Arthrodesmus* など 14 属の 37 種で観察した接合胞子を報告した。ここでは前報に記した地域の材料の他に山岸がマレーシアとニュー・ギニアで採集した材料から観察した *Cosmarium* の 32 種の接合胞子について報告する。

38. *Cosmarium anceps* Lundell var. *inflatum* Prescott (pl. 6, f. 1, 2)
In Prescott *et al.*, Synop. N. Am. Desm. 2 (3): 67, 1981.

Zygosporae (pl. 6, f. 2. ca. x300): broad ellipsoid. Wall: smooth. Loc.: Pha Kradung, Thailand.

39. *Cosmarium bioculatum* Brébisson var. *bioculatum* (pl. 6, f. 3, 4)
In Ralfs, Brit. Desm. 95, 1848.

Zygosporae (pl. 6, f. 4. ca. x400): globose. Wall: short blunt spines. Loc.: Florida, U. S. A. Slightly irregular globose zygosporae of this alga was observed by Ralfs (1848).

40. *Cosmarium bireme* Nordstedt var. *bireme* (pl. 6, f. 5, 6)
Vidensk. Medd. Dansk. Naturhist. Fören. 1869: 212, 1870.

Zygosporae (pl. 6, f. 6. ca. x300): globose. Wall: Long sharp spines. Loc.: Sarawak, Kotabaru, Malaysia.

41. *Cosmarium bireme* Nordstedt var. *barbadense* West, G. S.
(pl. 6, f. 7, 8)

J. Bot. 42: 286. 1904.

Zygosporae (pl. 6, f. 8. ca. x400): globose to broad ellipsoid. Wall: smooth. Loc.: Florida, U. S. A.

42. *Cosmarium contractum* Kirchner var. *contractum* (pl. 6, f. 9, 10)
In Cohn, Kryptogamen-Fl. Schlesien 2 (1): 147, 1878.

Zygosporae (pl. 6, f. 10. ca. x400): broad ellipsoid. Wall: smooth. Loc.: Lake Boraphet, Thailand. Slightly angular globose zygosporae

of this alga was observed by West & West (1905).

43. *Cosmarium contractum* Kirchner var. *subtrapeziforme* Föster
(pl. 6, f. 11, 12)

Nova Hedwigia 23: 548, 1972.

Zygosporae (pl. 6, f. 11. ca. x400): broad ellipsoid to globose. Wall: smooth. Loc.: Florida, U. S. A.

44. *Cosmarium excavatum* Nordstedt var. *excavatum* (pl. 6, f. 13, 14)
Vidensk. Medd. Dansk. Naturhist. Fören. 1869: 214, 1870.

Zygosporae (pl. 6, f. 14. ca. x300): compressed globose, with undulated circumference in face view, ellipsoid with roundly produced angles in side view. Wall: smooth. Loc.: Transpantaneila, Brazil.

45. *Cosmarium excavatum* Nordstedt var. *duplicatus* (Wille) Föster
(pl. 6, f. 15, 16)

Nova Hedwigia 23: 549, 1972.

Zygosporae (pl. 6, f. 16. ca. x400): globose. Wall: smooth. Loc.: Florida, U. S. A. Zygosporae having short spines was reported by Prescott (in Prescott *et al.* 1981).

46. *Cosmarium exasperatum* Joshua var. *spinatum* Scott & Prescott
(pl. 6, f. 17, 18)

Hydrobiologia 17: 58, 1961.

Zygosporae (pl. 6, f. 18. ca. x200): globose. Wall: fine scrobiculate. Loc.: Angkor Wat, Cambodia.

47. *Cosmarium hamperi* Reinsch var. *hamperi* f. *tumidum* Scott & Grönblad
(pl. 6, f. 19, 20)

Acta Soc. Sci. Fenn. ser. 2, B, 2 (8): 18, 1957.

Zygosporae (pl. 6, f. 20. ca. x200): globose. Wall: papillate

protuberances. Loc.: Florida, U. S. A.

48. *Cosmarium mansangense* West, W. & West, G. S. (pl. 7, f. 1, 2)

Ann. Roy. Bot. Gard. Calcutta 6: 209, 1907.

Zygosporule (pl. 7, f. 2. ca. x350): globose to broad ellipsoid. Wall: smooth. Loc.: Angkor Wat, Cambodia.

49. *Cosmarium monomazum* Lundell var. *monomazum* (pl. 7, f. 3, 4)

Nova Acta Reg. Soc. Sci. Upsal. ser. 3, 8 (2): 32, 1871.

Zygosporule (pl. 7, f. 4. ca. x300): globose. Wall: short sharp spines. Loc.: Tomakomai, Japan.

50. *Cosmarium nudum* (Turner) Gutwinski (pl. 7, f. 5, 6)

Bull. Acad. Sci. Cracovie Cl. Sci. Math. Nat. 1902 (9): 594, 1902.

Zygosporule (pl. 7, f. 6. ca. x200): globose. Wall: long sharp spines. Loc.: Angkor Wat, Cambodia.

51. *Cosmarium nymaniianum* Grunow var. *nymaniianum*

(pl. 7, f. 7, 8)

In Rabenhorst, Fl. Europ. Alg. 3: 166, 1868.

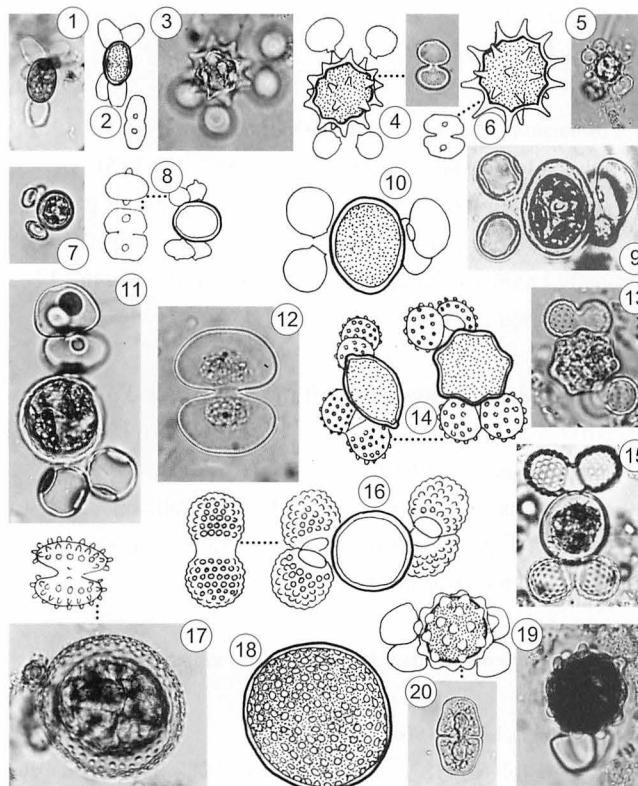


Plate 6. 1, 2. *Cosmarium anceps* var. *inflatum*. 3, 4. *Cos. bioculatum* var. *bioculatum*. 5, 6. *Cos. bireme* var. *bireme*. 7, 8. *Cos. bireme* var. *barbadense*. 9, 10. *Cos. contractum* var. *contractum*. 11, 12. *Cos. contractum* var. *subtrapeziforme*. 13, 14. *Cos. excavatum* var. *excavatum*. 15, 16. *Cos. excavatum* var. *diplomaius*. 17, 18. *Cos. exasperatum* var. *spinatum*. 19, 20. *Cos. hammeri* var. *hammeri* f. *tumidum*.

Zygosporule (pl. 7, f. 8. ca. x200): globose. Wall: flat papillate protuberances. Loc.: Florida, U. S. A.

52. *Cosmarium nymaniianum* Grunow var. *fallax* Scott & Grönblad (pl. 7, f. 9, 10)

Acta Soc. Sci. Fenn. ser. 2, B, 2 (8): 20, 1957.

Zygosporule (pl. 7, f. 10. ca. x200): broad ellipsoid, but surrounded with irregularly, undulated circumference. Wall: smooth. thick walled. Loc.: Florida, U. S. A.

53. *Cosmarium ocellatum* Eichler & Gutwinski var. *incrassatum* West & West

(pl. 7, f. 11, 12)

J. Roy. Microsc. Soc. 17: 485, 1897.

Zygosporule (pl. 7, f. 12. ca. x200): compressed quadrate, with narrowly rounded corners and slightly concaved sides. Wall: smooth. Loc.: Florida, U. S. A. Scott (in Prescott *et al.*, 1981) observed a very irregular cubic zygosporule with 7 angles in Mississippi material.

54. *Cosmarium ocellatum* Eichler & Gutwinski var. *ocellatum*

(pl. 7, f. 13, 14)

Rospr. Wydz. matem-przyr. Akad. Umiej. Krakowie 28: 164, 1894.

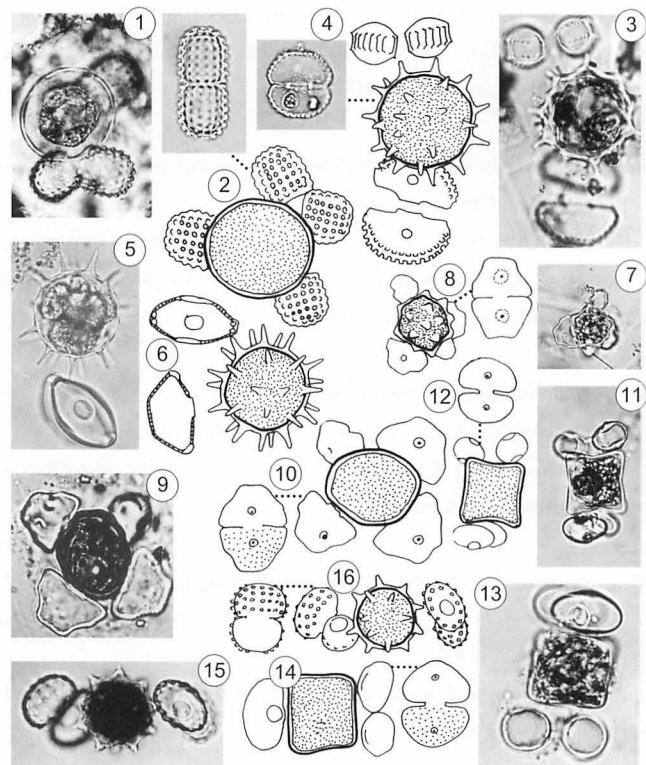


Plate 7. 1, 2. *Cosmarium mansangense*. 3, 4. *Cos. monomazum* var. *monomazum*. 5, 6. *Cos. nudum*. 7, 8. *Cos. nymaniianum* var. *fallax*. 9, 10. *Cos. ocellatum* var. *incrassatum*. 11, 12. *Cos. ocellatum* var. *ocellatum*. 13, 14. *Cos. ocellatum* var. *ocellatum*. 15, 16. *Cos. orthostichum* var. *orthostichum*.

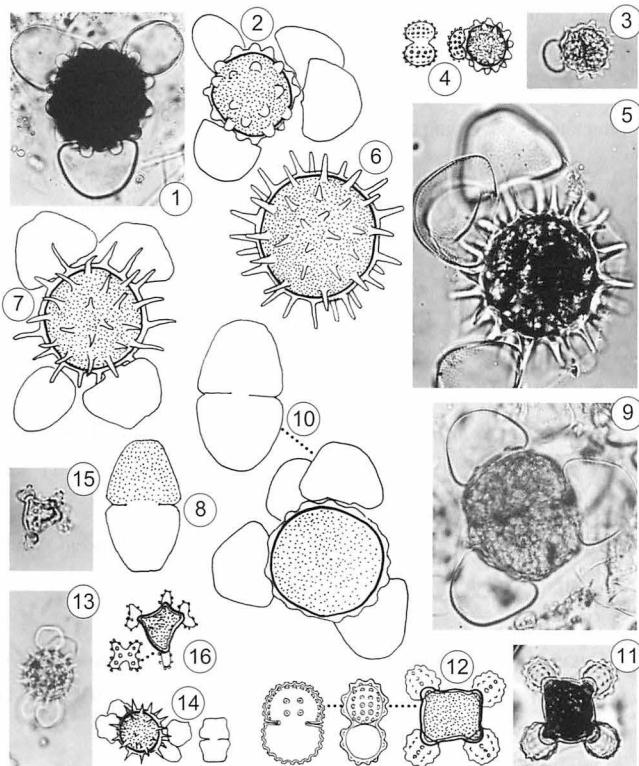


Plate 8. 1, 2. *Cosmarium pachydermum* var. *incrassatum*. 3, 4. *Cos. portianum* var. *portianum*. 5, 6. *Cos. pyramidatum* var. *borgei*. 7, 8. *Cos. pyramidatum* var. *stenonotum*. 9, 10. *Cos. pseudopyramidatum* var. *pseudopyramidatum*. 11, 12. *Cos. quadrifarum* var. *quadrifarum*. 13, 14. *Cos. quadratulum* var. *aplanatum*. 15, 16. *Cos. regnesi* var. *regnesi*.

Zygosores (pl. 7, f. 14. ca. x350): compressed quadrate, with rounded corners and nearly straight sides. Wall: smooth. Loc.: Florida, U.S.A.

55. *Cosmarium orthostichum* Lundell var. *orthostichum*

(pl. 7, f. 15, 16)

Nova Acta Reg. Soc. Sci. Upsal. ser. 3, 8 (2): 24, 1871.

Zygosore (pl. 7, f. 16. ca. x350): globose. Wall: short blunt spines. Loc.: Florida, U. S. A.

56. *Cosmarium pachydermum* Lundell var. *incrassatum* Scott & Grönblad

(pl. 8, f. 1, 2)

Acta Soc. Sci. Fenn. ser. 2, B, 2 (8): 20, 1957.

Zygosore (pl. 8, f. 2. ca. x250): globose. Wall: papillate protuberances. Loc.: Florida, U. S. A.

57. *Cosmarium portianum* Archer var. *portianum*

(pl. 8, f. 3, 4)

Proc. Dupl. Nat. Hist. Soc. 3: 49, 1860.

Zygosore (pl. 8, f. 4. ca. x250): globose to compressed globose. Wall: papillate protuberances. Loc.: Lake Baraphet, Thailand.

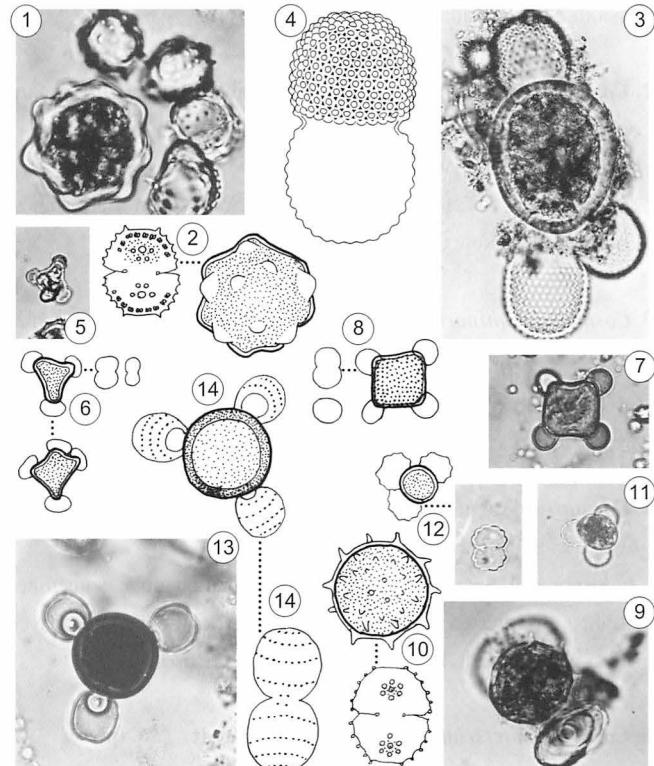


Plate 9. 1, 2. *Cosmarium quinarium* var. *quinarium*. 3, 4. *Cos. tesselatum*. 5, 6. *Cos. tinctum* var. *tinctum*. 7, 8. *Cos. tinctum* var. *globosiforme*. 9, 10. *Cos. trachypleurum* var. *trachypleurum*. 11, 12. *Cos. umbilicatum* var. *glabrum*. 13, 14. *Cos. zonatum* var. *subcirculare*.

58. *Cosmarium pyramidatum* Brébisson var. *borgei* Krieger & Gerloff

(pl. 8, f. 5, 6)

Gatt. Cosma. 2: 123, 1965.

Zygosore (pl. 8, f. 6. ca. x200): globose. Wall: long sharp spines. Loc.: Florida, U. S. A.

59. *Cosmarium pyramidatum* Brébisson var. *stenonotum* (Nordstedt) Klebs

(pl. 8, f. 7, 8)

Schrift. Phys.-Oekon. Ger. Königsberg ser. 5, 20: 31, 1879.

Zygosore (pl. 8, f. 7. ca. x300): globose. Wall: long sharp spines, slightly irregularly curved. Loc.: Florida, U. S. A.

60. *Cosmarium pseudopyramidatum* Lundell var. *pseudopyramidatum*

(pl. 8, f. 9, 10)

Nova Acta Reg. Soc. Sci. Upsal. ser. 2, 8 (2): 41, 1871.

Zygosore (pl. 8, f. 10. ca. x350): broad ellipsoid to globose. Wall: flat papillate protuberances. Loc.: Sete Quedas, Brazil.

61. *Cosmarium quadrifarum* Lundell var. *quadrifarum*

(pl. 8, f. 11, 12)

Nova Acta Reg. Soc. Sci. Upsal. ser. 3, 8 (2): 32, 1871.

Zygosore (pl. 8, f. 12. ca. x250): compressed quadrate, with slightly swelled sides and rounded, slightly produced corners. Wall:

- smooth. Loc.: Florida, U. S. A.
- 62. *Cosmarium quadratum* (Gay) De Toni var. *aplanatum* Insam & Krieger** (pl. 1, f. 11, pl. 8, f. 13, 14)
Hedwigia 76: 107, 1936.
Zygospor (pl. 8, f. 14. ca. x400): globose. Wall: short sharp spines.
Loc.: Woitape, New Guinea.
- 63. *Cosmarium quinarium* Lundell var. *quinarium*** (pl. 9, f. 1, 2)
Nova Act Reg. Soc. Sci. Upsal. ser. 3, 8 (2): 28, 1871.
Zygospor (pl. 9, f. 2. ca. x200): globose. Wall: a small number of flat papillate protuberances. Loc.: Florida, U. S. A.
- 64. *Cosmarium regnesii* Reinsch var. *regnesii*** (pl. 8, f. 15, 16)
Acta Soc. Senckenberg 6: 116, 1867.
Zygospor (pl. 8, f. 16. ca. x250): compressed quadrate, sometimes tetrahedrally twisted, with narrowly rounded corners and concaved sides. Wall: smooth. Loc.: Estrado Caldoirao, Brazil.
- 65. *Cosmarium tesselatum* (Delponte) Nordstedt** (pl. 9, f. 3, 4)
Acta Univ. Lund. 16: 7, 1880.
Zygospor (pl. 9, f. 3. ca. x200): broad ellipsoid. Wall: smooth. thick lamellated. Loc.: Chiang Mai, Thailand.
- 66. *Cosmarium tinctum* Ralfs var. *tinctum*** (pl. 9, f. 5, 6)
Brit. Desm. 95, 1848.
Zygospor (pl. 9, f. 6. ca. x250): compressed quadrate, usually tetrahedrally twisted, with rounded corners and slightly concaved sides. Wall: smooth. Loc.: Florida, U. S. A.
- 67. *Cosmarium tinctum* Ralfs var. *globosiforme* Krieger & Gerloff** (pl. 9, f. 7, 8)
- Gatt. Cosma. 1: 67, 1962.
Zygospor (pl. 9, f. 8. ca. x350): compressed quadrate, with rounded corners and straight or slightly concaved sides. Wall: punctate. Loc.: Woitape New Guinea.
- 68. *Cosmarium trachypleurum* Lundell var. *trachypleurum*** (pl. 9, f. 9, 10)
Nova Acta. Reg. Soc. Sci. Upsal. ser.3, 8 (2): 27, 1871.
Zygospor (pl. 9, f. 10. ca. x350): globose. Wall: slightly curved short blunt spines. Loc.: Tomakomai, Japan.
- 69. *Cosmarium umbilicatum* Lutkemuller var. *glabrum* Jao** (p. 9, f. 11, 12)
Bot. Bull. Acad. Sinica 3: 59, 1949.
Zygospor (pl. 9, f. 12. ca. x350): globose to broad ellipsoid. Wall: smooth. Loc.: Ishigaki, Okinawa, Japan.
- 70. *Cosmarium zonatum* Lundell var. *subcircullare* Scott & Grönblad** (pl. 9, f. 13, 14)
Acta Soc. Sci. Fenn. ser.2, B, 2 (8): 24, 1957.
Zygospor (pl. 9, f. 14. ca. x250): globose. Wall: thick. smooth.
Loc.: Florida, U. S. A.

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