

Stratigraphic distribution of Paleogene and Miocene dinocysts in Germany

Angelika Köthe & Barbara Piesker

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The stratigraphic distributions of more than 350 Paleogene and Miocene dinocyst species in Germany, which have been published during the last 35 years, were compiled by Köthe & Piesker (2007). Taxonomy and biozonation had been re-assessed according to current knowledge.

The stratigraphic distribution chart of Köthe & Piesker is continued. The chart is listed alphabetically. In each column cored boreholes and outcrops (see figure) are arranged from North to South. Doubts concerning the autochthonous occurrence are marked with question mark (“?”).



Literatur:

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Species	
<i>Achilleodinium biformoides</i> (Eisenack, 1954) Eaton, 1976	
<i>Achomosphaera andalouisiensis</i> Jan du Chene, 1977	
<i>Achomosphaera allicornu</i> (Eisenack, 1954) Davey & Williams, 1966	
<i>Achomosphaera bulla</i> Cookson & Eisenack, 1974	
<i>Achomosphaera crassipellis</i> (Deflandre & Cookson, 1955) Stover & Evitt, 1978	
<i>Achomosphaera linifera</i> (Cookson & Eisenack, 1967) Stover & Evitt, 1978	
<i>Achomosphaera multifurcata</i> Jain & Tandon, 1981	see page 9
<i>Achomosphaera ramulifera</i> (Deflandre, 1937) Evitt, 1963	
<i>Achomosphaera sagena</i> Davey & Williams, 1966	
<i>Achomosphaera triangulata</i> (Gerlach 1961) Davey & Williams 1969	
<i>Adnatosphaeridium multispinosum</i> Williams & Downie, 1966	
<i>Adnatosphaeridium robustum</i> (Morgenroth, 1966), de Coninck, 1975	
<i>Adnatosphaeridium vittatum</i> Williams & Downie, 1966	
<i>Alisocysta circumtabulata</i> (Drugg, 1967) Stover & Evitt, 1978	
<i>Alisocysta margarita</i> (Harland, 1979), Harland 1979	
<i>Alisocysta</i> sp. 2 sensu Heilmann-Clausen 1985	
<i>Alterbidinium? bicellulum</i> (Islam, 1983) Lentin & Williams, 1985	
<i>Amiculosphaera umbraculum</i> Harland, 1979	
<i>Amphorosphaeridium ?multispinosum</i> (Davey & Williams, 1966) Sarjeant, 1981	
<i>Apectodinium homomorphum</i> (Deflandre & Cookson, 1955) Lentin & Williams, 1977	
<i>Apectodinium hyperacanthum</i> (Cookson & Eisenack, 1965) Lentin & Williams, 1977	see page 10
<i>Apectodinium longispinosum</i> (Wilson, 1968) Bujak & Davey, 1983	
<i>Apectodinium paniculatum</i> (Costa & Downie, 1976) Lentin & Williams 1977	
<i>Apectodinium parvum</i> (Alberti, 1961) Lentin & Williams 1977	
<i>Apectodinium quinquelatum</i> (Williams & Downie, 1966) Costa & Downie, 1979	
<i>Apectodinium summissum</i> (Harland, 1979) Lentin & Williams, 1981	
<i>Apteodinium australiense</i> (Deflandre & Cookson, 1955) Williams, 1978 1972. <i>Emslandia emslandensis</i> Gerlach, 1961.– v. Benedek, tab. 2, pl. 3, fig. 15.	
* <i>Apteodinium gracile</i> sensu Strauss, 1991	
<i>Apteodinium spiridoides</i> v. Benedek, 1972	
<i>Apteodinium tectatum</i> Piasecki, 1980	
<i>Araneosphaera araneosa</i> Eaton, 1976	
<i>Araneosphaera stephanophora</i> (Benedek, 1972) Benedek & Sarjeant, 1981	
<i>Areoligera coronata</i> (Wetzel, 1933) Lejeune-Carpentier, 1938	
<i>Areoligera semicirculata</i> (Morgenroth, 1966) Stover & Evitt, 1978	
<i>Areoligera senonensis</i> Lejeune-Carpentier, 1938	
<i>Areoligera tauloma</i> Eaton, 1976	
<i>Areoligera undulata</i> Eaton, 1976	see page 11
<i>Areoligera volata</i> Drugg, 1967	
<i>Areosphaeridium diktyoplokus</i> (Klumpp, 1953) Eaton, 1971	
<i>Barssidinium evangelinae</i> Lentin <i>et al.</i> , 1994	
<i>Barssidinium graminosum</i> Lentin <i>et al.</i> , 1994	
<i>Barssidinium olymposa</i> Warny & Wrenn, 1997	
<i>Barssidinium pliocaenicum</i> (Head, 1993) Head, 1994	
<i>Barssidinium wrennii</i> Lentin <i>et al.</i> , 1994	
<i>Batiacasphaera hirsuta</i> Stover, 1977	
<i>Batiacasphaera micropapillata</i> Stover, 1977	
<i>Batiacasphaera minuta</i> (Matsuoka, 1983) Matsuoka & Head, 1992	
<i>Batiacasphaera sphaerica</i> Stover, 1977	
<i>Biconidinium longissimum</i> Islam, 1983	
<i>Bitectatodinium tepikiense</i> Wilson, 1973	
<i>Caligodinium aceras</i> (Manum & Cookson, 1964) Lentin & Williams, 1973	
<i>Caligodinium amiculum</i> Drugg, 1970	
<i>Caligodinium endoreticulatum</i> Stover & Hardenbol, 1994	
<i>Cannosphaeropsis passio</i> deVerteuil & Norris, 1996	
<i>Cerebrocysta bartonensis</i> Bujak in Bujak <i>et al.</i> , 1980	see page 12
<i>Cerebrocysta poulsenii</i> deVerteuil & Norris, 1996	
<i>Cerodinium dartmoorium</i> (Cookson & Eisenack, 1965) Lentin & Williams 1987	
<i>Cerodinium depressum</i> (Morgenroth, 1966) Lentin & Williams, 1987	
<i>Cerodinium diebelii</i> (Alberti, 1959) Lentin & Williams, 1987	
<i>Cerodinium speciosum</i> (Alberti, 1959) Lentin & Williams, 1987	
<i>Cerodinium speciosum glabrum</i> (Alberti, 1959) Gocht, 1969	
<i>Cerodinium striatum</i> (Drugg, 1967) Lentin & Williams, 1987	
<i>Cerodinium wardenense</i> (Williams & Downie, 1966) Lentin & Williams, 1987	
<i>Charlesdowniea clathrata</i> (Eisenack, 1938) Lentin & Vozzhennikova, 1989	see page 13
<i>Charlesdowniea coleothrypta</i> (Williams & Downie, 1966) Lentin & Vozzhennikova, 1989	

<i>Charlesdowniea crassiramosa</i> (Williams & Downie, 1966) Lentin & Vozzhennikova, 1989	see page 13
<i>Charlesdowniea fasciata</i> (Rozen, 1965) Lentin & Vozzhennikova, 1989	
<i>Charlesdowniea stellata</i> (Damassa, 1979) Lentin & Vozzhennikova, 1989	
<i>Charlesdowniea tenuivirgula</i> (Williams & Downie, 1966) Lentin & Vozzhennikova, 1989	
<i>Charlesdowniea variabilis</i> (Bujak in Bujak <i>et al.</i> , 1980) Lentin & Vozzhennikova, 1989	
<i>Chiropteridium galea</i> (Maier, 1959) Sarjeant, 1983	
<i>Chiropteridium lobospinosum</i> (Gocht in Weiler, 1956) Gocht, 1960	
<i>Cladopyxidium saeptum</i> (Morgenroth, 1968) Stover & Evitt, 1978	
<i>Cleistosphaeridium diversispinosum</i> Davey <i>et al.</i> 1966	
<i>Conneximura fimbriata</i> (Morgenroth, 1968) Marheinecke, 1992	
<i>Cordosphaeridium commune</i> Corradini, 1973	
<i>Cordosphaeridium biarmatum</i> Morgenroth, 1966	
<i>Cordosphaeridium ?callosum</i> Morgenroth, 1966	
<i>Cordosphaeridium cantharellum</i> (Brosius, 1963) Gocht, 1969	
<i>Cordosphaeridium ?cracenospinosum</i> Davey & Williams, 1966	
<i>Cordosphaeridium exilimurum</i> Davey & Williams, 1966	
<i>Cordosphaeridium fibrospinosum</i> Davey & Williams, 1966	
<i>Cordosphaeridium funiculatum</i> Morgenroth, 1966	
<i>Cordosphaeridium gracile</i> (Eisenack, 1954) Davey & Williams, 1966	
<i>Cordosphaeridium inodes</i> (Klumpp, 1953) Eisenack, 1963	see page 15
<i>Cordosphaeridium minimum</i> (Morgenroth, 1966) Benedek, 1972	
<i>Cordosphaeridium robustum</i> (Gocht, 1969) Sarjeant 1981	
<i>Cordosphaeridium ? tenuistriatum</i> Heisecke, 1970	
<i>Cordosphaeridium ? trompetum</i> (Cookson & Eisenack, 1982) Lentin & Williams, 1985	
<i>Corrudinium incompositum</i> (Drugg, 1970) Stover & Evitt, 1978	
<i>Cousteaudinium aubryae gonoperforata</i> Strauss in Strauss <i>et al.</i> , 2001 1992. <i>Thalassiphora gonoperforata</i> Strauss 1991.– Rusbült & Strauss, text-fig. 2, 8, fig. 9, 10.	
<i>Cribroperidinium conjunctum</i> (Eisenack & Cookson, 1960) Helenes, 1984 sensu Benedek 1972	
<i>Cribroperidinium guiseppeii major</i> (Morgenroth, 1966) & Lentin & Williams, 1985	
<i>Cribroperidinium tenuitabulatum</i> (Gerlach, 1961) Helenes, 1984	
<i># Cyclopsella elliptica/granosa</i> hier als Komplex behandelt	
<i>Dapsilidinium hystrichosum</i> Islam, 1983	
<i>Dapsilidinium pastielsii</i> (Davey & Williams, 1966) Bujak <i>et al.</i> , 1980	
<i>Dapsilidinium pseudocolligerum</i> (Stover, 1977) Bujak <i>et al.</i> , 1980	
<i>Dapsilidinium ?simplex</i> (White, 1842) Bujak <i>et al.</i> , 1980	
<i>Deflandrea denticulata</i> Alberti, 1959	
<i>Deflandrea granulata</i> Menéndez, 1965	
<i>Deflandrea heterophlycta</i> Deflandre & Cookson, 1955	
<i>Deflandrea leptodermata</i> Cookson & Eisenack, 1965	
<i>Deflandrea oebisfeldensis</i> Alberti, 1959	
<i>Deflandrea phosphoritica</i> Eisenack, 1938	
<i>Deflandrea phosphoritica</i> var. <i>spinulosa</i> (Alberti, 1959) sensu Strauss, 1991	
<i>Dinopterygium cladoides</i> Deflandre, 1935	
<i>Diphyes colligerum</i> (Deflandre & Cookson, 1955) Cookson, 1965	
<i>Diphyes ficusoides</i> Islam, 1983	
<i>Diphyes spinulum</i> (Drugg, 1970) Stover & Evitt, 1978	see page 17
<i>Disphaerogena carposphaeropsis</i> Wetzel, 1933	
<i>Distatodinium bifii</i> Brinkhuis <i>et al.</i> , 1992 1969. <i>Distatodinium paradoxum</i> .– Gocht (pars), 54, text-fig. 39a, pl. 7, fig. 6.	
<i>Distatodinium craterum</i> Eaton, 1976 ?1980. <i>Distatodinium scariosum</i> Liengjareng <i>et al.</i> , S. 477, 481, pl. 54, fig. 3.	
<i>Distatodinium ellipticum</i> (Cookson, 1965) Eaton, 1976 ?1980. <i>Distatodinium solidum</i> Chateaufeuf, S. 137, pl. 22, fig. 1-2.	
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<i>Distatodinium tenerum</i> (Benedek, 1972) Eaton, 1976	
<i>Distatodinium virgatum</i> Stover, 1977	
<i>Dracodinium condylos</i> (Williams & Downie, 1966) Costa & Downie, 1979	
<i>Dracodinium pachydermum</i> (Caro, 1973) Costa & Downie, 1979	
<i>Dracodinium politum</i> Bujak <i>et al.</i> , 1980	
<i>Dracodinium simile</i> (Eisenack, 1954) Costa & Downie, 1979	
<i>Dracodinium solidum</i> Gocht, 1955	
<i>Dracodinium varielongitudum</i> (Williams & Downie, 1966) Costa & Downie, 1979	
<i>Duosphaeridium nudum</i> (Cookson, 1965) Loeblich Jr. & Loeblich III, 1968	
<i>Eatonicysta furensis</i> (Heilmann-Clausen in Heilmann-Clausen & Costa, 1989) Stover & Williams, 1995	
<i>Eatonicysta ursulae</i> (Morgenroth, 1966) Stover & Evitt, 1978	
<i>Eisenackia crassitabulata</i> Deflandre & Cookson, 1955	see page 18

<i>Eisenackia ?scrobiculata</i> Morgenroth, 1966	see page 18
<i>Enneadocysta arcuata</i> (Eaton, 1971) Stover & Williams, 1995	
<i>Enneadocysta? dictyostila</i> (Menéndez, 1965) Stover & Williams, 1995	
<i>Enneadocysta pectiniformis</i> (Gerlach, 1961) Stover & Williams, 1995	
<i>Eocladopyxis peniculata</i> Morgenroth, 1966	
<i>Eocladopyxis tessellata</i> Liengjareern <i>et al.</i> , 1980	see page 19
<i>Exochosphaeridium insigne</i> deVerteuil & Norris, 1996	
<i>Fibrocysta axialis</i> (Eisenack, 1965) Stover & Evitt, 1978	
<i>Fibrocysta bipolaris</i> (Cookson & Eisenack, 1965) Stover & Evitt, 1978	
<i>Fibrocysta radiata</i> (Morgenroth, 1966) Stover & Evitt, 1978	
<i>Fibrocysta vectensis</i> (Eaton, 1976) Stover & Evitt, 1978	
<i>Filisphaera filifera</i> Bujak, 1984	
<i>Filisphaera ?minuta</i> Strauss & Lund, 1992	
<i>Florentinia ferox</i> (Deflandre, 1937) Duxbury, 1980	
<i># Fromea laevigata</i> (Drugg, 1967) Stover & Evitt, 1978	
<i>Gerlachidium aechmophorum</i> (Benedek, 1972) Benedek & Sarjeant, 1981	
<i>Glaphyrocysta divaricata</i> (Williams & Downie, 1966) Stover & Evitt, 1978	
<i>Glaphyrocysta exuberans</i> (Deflandre & Cookson, 1955) Stover & Evitt, 1978	
<i>Glaphyrocysta intricata</i> (Eaton, 1971) Stover & Evitt, 1978	
<i>Glaphyrocysta laciniiformis</i> (Gerlach, 1961) Stover & Evitt, 1978	
<i>Glaphyrocysta microfenestrata</i> (Bujak, 1976) Stover & Evitt, 1978	
<i>Glaphyrocysta ordinata</i> (Williams & Downie, 1966) Stover & Evitt, 1978	see page 20
<i>Glaphyrocysta pastielsii</i> (Deflandre & Cookson, 1955) Stover & Evitt, 1978	
<i>Glaphyrocysta paupercula</i> Liengjareern <i>et al.</i> , 1980	
<i>Glaphyrocysta ?reticulosa</i> (Gerlach, 1961) Stover & Evitt, 1978	
<i>Glaphyrocysta retiintexta</i> (Cookson, 1965) Stover & Evitt, 1978	
<i>Glaphyrocysta spineta</i> (Eaton, 1976) Stover & Evitt, 1978	
<i>Glaphyrocysta texta</i> (Bujak, 1976) Stover & Evitt, 1978	
<i>Glaphyrocysta undulata</i> (Eaton, 1976) Stover & Evitt, 1978	
<i>Glaphyrocysta vicina</i> (Eaton, 1976) Stover & Evitt, 1978	
<i>Gramocysta verricula</i> (Piasecki, 1980) Lund & Lund-Christensen in Daniels <i>et al.</i> , 1990	
<i>Habibacysta tectata</i> Head, Norris & Mudie, 1989	
<i>Hafniasphaera fluens</i> Hansen, 1977	
<i>Hafniasphaera goodmannii</i> Edwards, 1982	
<i>Hafniasphaera graciosa</i> Hansen, 1977	
<i>Hafniasphaera septata</i> (Cookson & Eisenack, 1967) Hansen, 1977	
<i>Hafniasphaera solidago</i> (Verteuil & Norris, 1996) Harland & Hill, 1979	see page 21
<i>Hemisphaeridium fenestratum</i> Bujak in Bujak <i>et al.</i> , 1980	
<i>Heteraulacacysta fehmannensis</i> Lentin & Williams, 1973	
<i>Heteraulacacysta leptalae</i> Eaton, 1976	
<i>Heteraulacacysta porosa</i> Bujak in Bujak <i>et al.</i> , 1980	
<i>Heteraulacacysta verriculata</i> Islam, 1983	
<i>Homotryblium abbreviatum</i> Eaton, 1976	
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<i>Homotryblium floripes</i> (Deflandre & Cookson, 1955) Stover, 1975	
<i>Homotryblium floripes brevibradiatum</i> (Cookson & Eisenack, 1961) Lentin & Williams, 1977	
<i>Homotryblium oceanicum</i> Eaton, 1976	
<i>Homotryblium pallidum</i> Davey & Williams, 1966	
<i>Homotryblium plectilum</i> Drugg & Loeblich, 1967	
<i>Homotryblium tenuispinosum</i> Davey & Williams, 1966	
1972. <i>Hystrichosphaeridium tubiferum</i> (Ehrenberg 1838) Deflandre 1937.– v. Benedek, p. 30, pl. 9, fig. 5.	
<i>Homotryblium vallum</i> Stover, 1977	
<i>Horologinella spinosa</i> Cookson, 1965	
<i>Hystrichokolpoma cinctum</i> Klumpp, 1953	
<i>Hystrichokolpoma granulatum</i> Eaton, 1976	
<i>Hystrichokolpoma manipulatam</i> Islam, 1983	
<i>Hystrichokolpoma poculum</i> Maier, 1959	
<i>Hystrichokolpoma rigaudiae</i> Deflandre & Cookson, 1955	
<i>Hystrichokolpoma salacia</i> Eaton, 1976	
<i>Hystrichokolpoma unispinum</i> Williams & Downie, 1966	see page 23
<i>Hystrichosphaeridium cylindratum</i> Morgenroth, 1966	
<i>Hystrichosphaeridium latirictum</i> Davey & Williams, 1966	
<i>Hystrichosphaeridium patulum</i> Davey & Williams, 1966	
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<i>Hystrichosphaeridium tubiferum brevispinum</i> (Davey & Williams, 1966) Lentin & Williams, 1973	see page 23	
<i>Hystrichosphaeropsis obscura</i> Habib, 1972		
<i>Hystrichostrogylon coninckii</i> Heilmann-Clausen in Thomsen & Heilmann-Clausen, 1985		
<i>Hystrichostrogylon membraniphorum</i> Agelopoulos, 1964		
<i>Hystrichostrogylon membraniphorum granulatum</i> Heilmann-Clausen in Heilmann-Clausen & Costa, 1989		
<i>Hystrichostrogylon membraniphorum membraniphorum</i> Agelopoulos, 1964	see page 24	
<i>Impagidinium dispertitum</i> (Cookson & Eisenack, 1965) Stover & Evitt, 1978		
<i>Impagidinium pallidum</i> Bujak, 1984		
<i>Impagidinium patulum</i> (Wall, 1967) Stover & Evitt, 1978		
<i>Impagidinium sphaericum</i> (Wall, 1967) Lentin & Williams, 1981		
<i>Impagidinium victorianum</i> (Cookson & Eisenack, 1965) Stover & Evitt, 1978		
<i>Impletosphaeridium multispinosum</i> Benedek, 1972		
<i>Impletosphaeridium</i> sp. I sensu Manum, 1976		
<i>Invertocysta</i> sp. aff. <i>I. tabulata</i> Edwards, 1984		
<i>Invertocysta tabulata</i> Edwards, 1984		
<i>Kallosphaeridium biornatum</i> Stover, 1977		
<i>Kallosphaeridium brevibarbatum</i> de Coninck, 1969		
<i>Labyrinthodinium truncatum</i> Piasecki, 1980		
<i>Labyrinthodinium truncatum modicum</i> deVerteuil & Norris, 1996		
<i>Labyrinthodinium truncatum reductum</i> Strauss & Lund, 1992		
<i>Labyrinthodinium truncatum truncatum</i> Piasecki, 1980	see page 25	
<i>Lantemosphaeridium lanosum</i> Morgenroth, 1966		
<i>Lejeunecysta cinctoria</i> (Bujak in Bujak <i>et al.</i> , 1980) Lentin & Williams, 1981		
<i>Lejeunecysta convexa</i> Matsuoka & Bujak, 1988		
<i>Lejeunecysta fallax</i> (Morgenroth, 1966) Artzner & Dörhöfer, 1978		
<i>Lejeunecysta hyalina</i> (Gerlach, 1961) Artzner & Dörhöfer, 1978		
<i>Lejeunecysta spatiosa</i> (Morgenroth, 1966) Wilson & Clowes, 1980		
<i>Lejeunecysta tenella</i> (Morgenroth, 1966) Wilson & Clowes, 1980		
1972. <i>Spinidinium densispinatum</i> Stanley, 1965.– v. Benedek, p. 46, pl. 9, fig. 6, pl. 15, fig. 7-9.		
<i>Lingulodinium machaerophorum</i> (Deflandre & Cookson, 1955) Wall, 1967		
<i>Lingulodinium machaerophorum truncatum</i> Strauss in Strauss <i>et al.</i> (2001)		
<i>Lingulodinium pycnospinosum</i> (Benedek, 1972) Stover & Evitt, 1978		
<i>Melitasphaeridium asterium</i> (Eaton, 1976) Bujak <i>et al.</i> , 1980		
<i>Melitasphaeridium choanophorum</i> (Deflandre & Cookson, 1955) Harland & Hill, 1979		
<i>Melitasphaeridium pseudorecurvatum</i> (Morgenroth, 1966) Bujak <i>et al.</i> , 1980		
<i>Melitasphaeridium simpulum</i> Islam, 1983	see page 26	
<i>Membranilarnacia pterococcoides minuta</i> (Rozen, 1965) Lentin & Williams, 1973		
<i>Membranophoridium aspinatum</i> Gerlach, 1961		
<i>Membranophoridium bilobatum</i> Michoux, 1985		
<i>Membranophoridium intermedium</i> Stover & Hardenbol, 1994		
<i>Membranosphaera</i> sp. B. sensu De Coninck 1975		
<i>Microdinium</i> sp. cf. <i>M. ornatum</i> sensu Heilmann-Clausen, 1985		
<i>Microsphaeridium ancistroides</i> Benedek, 1972		
<i>Muratodinium fimbriatum</i> (Cookson & Eisenack, 1967) Druggs, 1970		
<i>Nematosphaeropsis ?crassimuratus</i> sensu Köthe, 2000		
<i>Nematosphaeropsis crassimuratus</i> Strauss <i>et al.</i> , 2001		
<i>Nematosphaeropsis lemniscata</i> Bujak, 1984		
<i>Nematosphaeropsis reticulensis</i> (Pastiels, 1948) Sarjeant, 1986		
<i>Nematosphaeropsis rigida</i> Wrenn, 1988		
<i>Oligosphaeridium complex</i> (White, 1842) Davey & Williams, 1966		see page 27
<i>Operculodinium alsium</i> Matsuoka & Bujak, 1988		
<i>Operculodinium centrocarpum</i> (Deflandre & Cookson, 1955) Wall, 1967 non 1997. <i>Operculodinium centrocarpum</i> Deflandre & Cookson, 1955) Wall, 1967.– Pross, p. 92, pl. 3, fig. 5, 6.		
<i>Operculodinium? crassum</i> Harland, 1979		
<i>Operculodinium? eirikianum</i> Head <i>et al.</i> , 1989		
<i>Operculodinium giganteum</i> Wall, 1967		
<i>Operculodinium israelianum</i> (Rossignol, 1962) Wall, 1967		
<i>Operculodinium janduchenei</i> Head, Morris & Mudie 1989		
<i>Operculodinium longispinigerum</i> Matsuoka, 1983		
<i>Operculodinium microtrianum</i> (Klumpp, 1953) Islam, 1983		
<i>Operculodinium nanaconulum</i> Islam, 1983		
<i>Operculodinium piaseckii</i> Strauss & Lund, 1992)		
1990. <i>Operculodinium</i> sp. Piasecki 1980.– Lund & Lund-Christensen in Daniels <i>et al.</i> , pl. 8, fig. 5.		
<i>Operculodinium severinii</i> (Cookson & Cranwell, 1967) Islam, 1983	see page 28	
<i>Operculodinium</i> sp. 1 sensu Manum <i>et al.</i> , 1989		

<i>Operculodinium xanthium</i> (Benedek, 1972) Stover & Evitt, 1978	see page 28
<i>Palaeocystodinium golzowense</i> Alberti, 1961	
<i>Palaeocystodinium ?hyperxanthum</i> (Vozzhennikova, 1963) Vozzhennikova, 1967	
<i>Palaeocystodinium lidiae</i> (Górka, 1963) Davey, 1969	
<i>Palaeocystodinium minor</i> Straus in Strauss <i>et al.</i> , 2001	
<i>Palaeocystodinium miocaenicum</i> Straus in Strauss <i>et al.</i> (2001)	
<i>Palaeocystodinium powellense</i> Strauss <i>et al.</i> (2001)	
<i>Palaeoperidinium pyrophorum</i> (Ehrenberg, 1838) Sarjeant, 1967	
<i>Paleotetradinium minusculum</i> (Alberti, 1961) Stover & Evitt, 1978	
<i>Paucisphaeridium inversibuccinum</i> (Davey & Williams, 1966) Bujak <i>et al.</i> , 1980	
<i>Pentadinium ?circumsutum</i> (Morgenroth, 1966) Stover & Evitt, 1978	see page 29
<i>Pentadinium goniferum</i> Edwards, 1982	
<i>Pentadinium imaginatum</i> (Benedek, 1972) Stover & Hardenbol, 1994	
<i>Pentadinium laticinctum</i> Gerlach, 1961	
<i>Pentadinium laticinctum granulatum</i> Gocht, 1969 non 1997. <i>Pentadinium laticinctum granulatum</i> Gocht, 1969.– Pross, 96, pl. 5, fig. 7.	
<i>Pentadinium lophophorum</i> (Benedek, 1972) Benedek, Gocht & Sarjeant, 1982	
<i>Pentadinium spinulum</i> Strauss & Lund, 1992	
<i>Pentadinium taeniagerum</i> Gerlach, 1961	
<i>Phelodinium magnificum</i> (Stanley, 1965) Stover & Evitt, 1978	
<i>Phthanoperidinium amoenum</i> Drugg & Loeblich Jr., 1967	
<i>Phthanoperidinium comatum</i> (Morgenroth, 1966) Eisenack & Kjellström, 1971	see page 30
<i>Phthanoperidinium coreoides</i> (Benedek, 1972) Lentin & Williams, 1976	
<i>Phthanoperidinium crenulatum</i> (de Coninck, 1975) Lentin & Williams, 1977	
<i>Phthanoperidinium filigranum</i> Benedek, 1972) Benedek & Sarjeant, 1981	
<i>Phthanoperidinium geminatum</i> Bujak in Bujak <i>et al.</i> , 1980	
<i>Phthanoperidinium levimurum</i> Bujak in Bujak <i>et al.</i> , 1980	
<i>Phthanoperidinium polytrix</i> (Benedek, 1972) Lentin & Williams, 1976	
<i>Phthanoperidinium resistente</i> (Morgenroth, 1966) Eisenack & Kjellström, 1972	
<i>Phthanoperidinium stockmansii</i> (de Coninck, 1975) Lentin & Williams, 1977	
<i>Polysphaeridium zoharyi</i> (Rossignol, 1962) Bujak <i>et al.</i> , 1980	
<i>Pyxidinopsis densepunctata</i> de Coninck, 1985	see page 31
<i>Reticulosphaera actinocoronata</i> (Benedek, 1972) Bujak & Matsuoka, 1986	
<i>Rhombodinium draco</i> Gocht, 1955	
<i>Rhombodinium glabrum</i> (Cookson, 1956) Vozzhennikova, 1967	
<i>Rhombodinium longimanum</i> Vozzhennikova, 1967	
<i>Rhombodinium perforatum</i> (Jan Du Chene & Chateaufneuf, 1975) Lentin & Williams, 1977	
<i>Rhombodinium porosum</i> Bujak, 1979	
<i>Riculacysta perforata</i> Stover, 1977	
<i>Rottmestia borussica</i> (Eisenack, 1954) Cookson & Eisenack, 1961	
<i>Rottmestia borussica granulata</i> Heilmann-Clausen in Heilmann-Clausen & Costa, 1989	
<i>Samlandia chlamytophora</i> Eisenack, 1954	see page 32
<i>Samlandia reticulifera</i> Cookson & Eisenack, 1965	
<i>Saturnodinium pansum</i> (Stover, 1977) Brinkhuis <i>et al.</i> , 1992	
<i>Selenopemphix armata</i> Bujak in Bujak <i>et al.</i> , 1980	
<i>Selenopemphix brevispinosa</i> Head <i>et al.</i> , 1989	
<i>Selenopemphix brevispinosa conspicua</i> deVerteuil & Norris, 1992	
<i>Selenopemphix dionaeacysta</i> Head <i>et al.</i> , 1989	
<i>Selenopemphix nephroides</i> Benedek, 1972	
<i>Selenopemphix quanta</i> (Bradford, 1975) Matsuoka, 1985	
<i>Selenopemphix selenoides</i> Benedek, 1972	
<i>Senegalinium microgranulatum</i> (Stanley, 1965) Stover & Evitt, 1978	see page 33
<i>Senoniasphaera stagonoides</i> (Benedek, 1972) Helenes, 1983	
<i>Spinidinium densispinatum</i> Stanley, 1965	
<i>Spinidinium? ovale</i> (Vozzhennikova, 1967) Lentin & Williams 1977	
<i>Spiniferella cornuta</i> (Gerlach, 1961) Stover & Hardenbol, 1994	
<i>Spiniferites crassivariabilis</i> Straus in Strauss <i>et al.</i> (2001)	
* <i>Spiniferites crassivariabilis reductus</i> sensu Strauss 1991	
<i>Spiniferites gracilimembranaceus</i> Strauss & Lund, 1992	
<i>Spiniferites grallaeformis</i> (Brosius, 1963) Strauss <i>et al.</i> (2001)	
* <i>Spiniferites impagidinaeformis</i> sensu Rusbült & Strauss 1992	
<i>Spiniferites lazus</i> Reid, 1974	
<i>Spiniferites membranaceus</i> (Archangelsky, 1969) Lentin & Williams, 1973	see page 33
<i>Spiniferites mirabilis</i> (Rossignol, 1964) Sarjeant, 1970	
<i>Spiniferites nodosus</i> (Wall, 1967) Sarjeant, 1970	
<i>Spiniferites pseudofurcatus</i> (Klumpp, 1953) Serjeant, 1970	
<i>Spiniferites ramosus</i> (Ehrenberg, 1938) Mantell, 1854	

<i>Spiniferites ramosus gracilis</i> (Davey & Williams, 1966) Corradini, 1973	see page 33
<i>Spiniferites spongiophragmatus</i> Strauss in Strauss <i>et al.</i> (2001)	
<i>Spiniferites solidago</i> deVerteuil & Norris, 1996	
<i>Sumatradinium druggii</i> Lentin <i>et al.</i> , 1994	
<i>Sumatradinium hispidum</i> (Drugg, 1970) Lentin & Williams, 1976	
<i>Sumatradinium soucouyantiae</i> deVerteuil & Norris, 1992	see page 34
? <i>Surculosphaeridium alagoense</i> (Regali, Uesugui & Santos, 1974) Lentin & Williams, 1981	
<i>Systematophora placacantha curta</i> (Matsouka & Bujak, 1988) Strauss & Lund, 1992	
<i>Systematophora placacantha</i> (Deflandre & Cookson, 1955) Davey in Davey <i>et al.</i> , 1969	
<i>Tanyosphaeridium regulare</i> Davey & Williams, 1976	
<i>Tanyosphaeridium xanthiopyxides</i> (O. Wetzel, 1933) Stover & Evitt, 1978	see page 35
<i>Tectatodinium minimum</i> Strauss & Lund, 1992	
<i>Tectatodinium pellitum</i> Wall, 1967	
<i>Tectatodinium psilatium</i> Wall & Dale in Wall <i>et al.</i> , 1973	
<i>Thalassiphora decrementa</i> Islam, 1983	
<i>Thalassiphora delicata</i> Williams & Downie, 1966	see page 36
<i>Thalassiphora fenestrata</i> Liengjarern <i>et al.</i> , 1980	
<i>Thalassiphora patula</i> (Williams & Downie, 1966) Stover & Evitt, 1978	
<i>Thalassiphora pelagica</i> (Eisenack, 1954) Eisenack & Gocht, 1960	
<i>Thalassiphora reticulata</i> Morgenroth, 1966	
<i>Thalassiphora</i> sp. cf. <i>Th. succincta</i> Morgenroth, 1966	see page 36
<i>Thalassiphora spinifera</i> (Cookson & Eisenack, 1965) Stover & Evitt, 1978	
<i>Trinovantedinium ferugnomatum</i> deVerteuil & Norris, 1992	
<i>Trinovantedinium glorianum</i> (Head <i>et al.</i> , 1989) deVerteuil & Norris, 1992	
<i>Tuberculodinium rossignoliae</i> Drugg, 1970	
<i>Tuberculodinium vancampoe</i> (Rossignol, 1962) Wall, 1967	see page 36
<i>Turbiosphaera galatea</i> Eaton, 1976	
<i>Unipontidinium aquaeductum</i> (Piasecki, 1980) Wrenn, 1988	
<i>Vozzhennikovia apertura</i> (Wilson, 1967) Lentin & Williams, 1976	
<i>Vozzhennikovia ceraichia</i> Stover & Hardenbol, 1994	
<i>Vozzhennikovia spinula</i> Stover & Hardenbol, 1994	see page 36
<i>Wetzeliella articulata</i> Eisenack, 1938	
<i>Wetzeliella articulata brevicornuta</i> Heilmann-Clausen in Heilmann-Clausen & Costa, 1989	
<i>Wetzeliella astra</i> Costa <i>et al.</i> , 1978 1969. <i>Wetzeliella</i> sp. 1.– Gocht, tab. 1, pl. 10, fig. 8.	
<i>Wetzeliella crisa</i> Agelopoulos, 1967	
<i>Wetzeliella eocaenica</i> Agelopoulos, 1967	see page 36
<i>Wetzeliella gochtii</i> Costa & Downie, 1976	
<i>Wetzeliella lunaris</i> Gocht, 1969	
<i>Wetzeliella meckelfeldensis</i> Gocht, 1969	
<i>Wetzeliella meckelfeldensis lobisca</i> (Williams & Downie, 1966) Costa & Downie, 1979	
<i>Wetzeliella ovalis</i> Eisenack, 1954	see page 36
<i>Wetzeliella samlandica</i> Eisenack, 1954	
<i>Wetzeliella simplex</i> (Bujak, 1979) Lentin & Vozzhennikova, 1989	
<i>Wetzeliella spinula</i> (Bujak, 1979) Lentin & Vozzhennikova, 1989	
<i>Wetzeliella symmetrica</i> Weiler, 1956 see <i>Wetzeliella gochtii</i>	
<i>Wetzeliella wetzelii</i> Agelopoulos, 1967	see page 36
<i>Wilsonidium echinosuturatum</i> (Williams, 1967) Lentin & Williams, 1976	
<i>Xenicodinium conispinosum</i> Stover & Hardenbol, 1994	
<i>Xenicodinium echiniferum</i> Stover & Hardenbol, 1994	

Dinocysts	<i>Apteo- dinium tectatum</i>	<i>Araneo- sphaera araneosa</i>	<i>Araneo- sphaera stephano- phora</i>	<i>Areoligera coronata</i>	<i>Areoligera semicirculata</i>	<i>Areoligera senonensis</i>	<i>Areoligera tauloma</i>	<i>Areoligera undulata</i>	<i>Areoligera volata</i>	<i>Areo- sphaeridium diktyoplokus</i>	<i>Barssi- dinium evange- lineae</i>	<i>Barssi- dinium grami- nosum</i>	<i>Barssi- dinium olymposa</i>	<i>Barssi- dinium plicocae- nicum</i>	<i>Barssi- dinium wrennii</i>	<i>Batiaca- sphaera hirsuta</i>
Localities	Wursterheide C GoHy 1560 Olfr	GoHy 984	Tönisberg	Söhlingen H1 Pennigsehl	GoHy 984 Lehrte Tönisberg Bodenheim Biebsheim Bosenheim Frei-Laubsheim Lautersheim Bott-Eder	Meckelfeld GoHy 984 Söhlingen H1 Pennigsehl Lingen	Wursterheide C GoHy 994 Olfr Lingen Doberg	Bodenheim Biebsheim Bosenheim Frei-Laubsheim Wöllstein Lautersheim	Söhlingen H1	Wursterheide A Wursterheide B GoHy 984 Lehrte Doberg	Lübtheen 27	Lübtheen 27	Lübtheen 27	Brekum Nieder Ochtenhausen	Lübtheen 27	Wursterheide A Wursterheide C N Ochtenhausen Groß Pampau Lübtheen 27
DN10																
DN9																
DN8																
DN7																
DN6																
DN5																
DN4																
DN3																
D16 =DN2 _a																
DN1																
D15																
nb D14																
na																
D13																
nc D12 ^{nb}																
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D11																
D10																
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nb D3																
na																
D2																
D1																

Legende: ? | Zweifel an autochthonen Vorkommen

Diocysts	<i>Cordosphaeridium minimum</i>	<i>Cordosphaeridium robustum</i>	<i>Cordosphaeridium tenuistriatum</i>	<i>Cordosphaeridium trompetum</i>	<i>Corridinium incompositum</i>	<i>Coosteaudinium aubryae</i>	<i>Coosteaudinium aubryae gonoperforata</i>	<i>Cribroperidium conjunctum sensu BENEDEK</i>	<i>Cribroperidium guiseppiei major</i>	<i>Cribroperidium tenuitubulatum</i>	<i>Cyclopsiella elliptica/granosa</i>	<i>Dapsilidium hystrichosum</i>	<i>Dapsilidium pastelsii</i>
Localities	Wursterheide C N. Ochtershausen Lübtheen 27 GoHy 1670 GoHy 994 Olfry Lingen Lehrne Tonisberg Bodenheim Biebsalshelm Bosenheim Bott-Eder	Wursterheide B Meckelfeld GoHy 994 Lingen Lehrne	GoHy 994	Söhlingen H1	Wursterheide A	Wursterheide C	N. Ochtershausen Lübtheen 46	GoHy 994	Bodenheim Biebsalshelm	Wursterheide A Wursterheide B GoHy 1670 GoHy 1584 GoHy 994 Olfry Lingen Lehrne Tonisberg Bodenheim Biebsalshelm Bosenheim Frei-Laubersheim Lautersheim Bott-Eder	Wursterheide C Lübtheen 27	Wursterheide A	N. Ochtershausen Bodenheim Bosenheim Frei-Laubersheim
DN10													
DN9	■												■
DN8	■												
DN7													
DN6													
DN5	■						■				■		■
DN4	■					■	■				■		■
DN3													
b	■												
D16 ≈DN2 a	■									■	■		
DN1													
D15	■							■		■			
nb	■									■			
D14	■									■			
na	■								■	■			■
D13	■									■			■
nc	■									■			
D12 ^{nb}	■									■			
na	■									■			
D11	■									■			
D10	■									■			
nb	■									■			
D9	■					■				■			
na	■					■				■			
nb	■									■			
na	■									■			
D8 ^{nb}	■									■			
na	■									■			
D7 ^{nb}	■									■			
na	■									■			
D6 ^{nb}	■									■			
na	■									■			
D5	■									■			
na	■									■			
D4 ^{nb}	■									■			
na	■									■			
nc	■									■			
D3 ^{nb}	■									■			
na	■									■			
D2	■									■			
D1	■									■			

