References cited in figures 2, 3	Quadros (1988); Grahn *et al.* (2003)			Dino (1999), Quadros (1999), Loboz				Daemon *et al.* (1967) (correlation after Dino, 1999)					Oliveira (1991)	Rodriguez *et al*	Richardson & McGregor (1986), McGregor & Camfield (1976, 1982), McGregor (1979), Ravn & Benson (198									Turnau (1996)		rissé & Deunff (	Cloutier *et al.*	vchimovitch *et al*. (199	
Stratigraphic units	Jandiatuba/Uere			Ponta Grossa				Ponta Grossa						Pimenteira															
Country	Brasil														ORS Continent										Pomerania		France	Canada	Russia	
Age of the assemblages	Ems-Eif	Giv	Fra	Ems	Ems-Eif	Eif-la Giv	Fra		Ems	Ems-Eif	Eif-la Giv	Fra	Giv-Frasn	Frasn	Prag	ea Ems	Ems ta	Ems-Eif*	ea Eif	la Eif	ea Giv	la Giv	ea Fra	la Fra	la Eif	ea Giv	la Giv-Mid Fras	d-Giv-mid-Fra	ranges	Spp un
Biozones	*Talargada*	*A. eisenacki*	*P.laevigata*	**A3**	**A4**	**A5**	**A6**		**D2b=A3**	**A4=D3**	**D4=A5**	**D5=A6**	ranges		*PE*	*AS*	*DE*		*VL*	*DN*	*LM*	*OT*	*OB*	*TG*						
Selected species from Argentina and Bolivia	8			9.A				**synonymy**	9.B				9.C	10	11										12		13	14	15	
Acinosporites acanthomammillatus						1												1	1	1	1	1			1	1			Eif	1
Acinosporites apiculatus	1				1												1												
Acinosporites eumammillatus							1																							
Acinosporites hirsutus																				1	1									
Acinosporites ledundae																														
Acinosporites lindlarensis					1									1		1	1	1	1	1	1				1	1				
Acinosporites macrospinosus						1													1	1	1							1		
Anapiculatisporites petilus																			1	1	1	1								
Ancyrospora langii						1															1	1						1		
Ancyrospora spp.					1												1		1	1										
Apiculatasporites inferus																														
Apiculatasporites microconus																1	1		1	1	1	1			1	1				
Apiculatisporis grandis																														
Apiculiretusispora brandtii															1	1		1												
Apiculiretusispora densiconata																			1	1	1	1								
Apiculiretusispora gaspiensis																	1													
Apiculiretusispora laxa																														
Apiculiretusispora plicata															1	1														
Archaeoperisaccus sp. in Ottone																														
Archaeozonotriletes chulus var. *chulus*															1	1	1	1	1									1		
Archaeozonotriletes variabilis									?					1						1	1	1				1		1	ea Fra	1
Auroraspora pseudocrista																								1						
Camarozonotriletes concavus						1																								
Camptozonotriletes caperatus															1													1		
Chelinospora concinna							1															1				1				
Chelinospora ligurata						1								1								1				1				
Chelinospora paravermiculata						1								1																
Chelinospora timanica						1								1							1	1				1		1		
Convolutispora crassata																														
Convolutispora disparalis																														
Corystisporites multispinosus					1														1	1	1	1								
Craspedispora ghadamisensis						1																								
Craspedispora paranensis						1								1																
Crassispora catenata																								1						
Cymbosporites catillus						1								1						1	1							1		
Cymbosporites cyathus						1															1									
Cymbosporites hormiscoides																														
Cymbosporites spp.																														
Diatomozonotriletes franklinii					1															1	1	1								
Dibolisporites echinaceus	1															1	1		1	1	1				1	1				
Dibolisporites eifeliensis															1	1		1												
Dibolisporites farraginis																			1	1	1	1								
Dibolisporites quebecensis															1															
Dibolisporites spp.																														

Dibolisporites uncatus																	1	1	1	1										
Dibolisporites variegatus																														
Dibolisporites varius																1														
Dictyotriletes emsiensis morphon														1														1		
Dictyotriletes subgranifer																1														
Diducites mucronatus					1																								Fra-Fa	1
Emphanisporites annulatus		1				*Emph.* cf. *erraticus*	1	1				1	1	1	1	1	1	1									1		
Emphanisporites decoratus												1																		
Emphanisporites epicautus																														
Emphanisporites orbicularis																														
Emphanisporites rotatus	1														1	1	1	1	1								1			
Endoculeospora altobellii																														
Endosporites longiradiatus																														
Geminospora lemurata				1						1								1	1	1				1			1			
Geminospora piliformis					1																						1			
Geminospora punctata				1						1																	1			
Geminospora sp. cf. *G. tuberculata* var. *tuberculata*																			1											
Grandispora brevispinosa																														
Grandispora brevizonata																														
Grandispora daemonii					1																									
Grandispora douglastownense			1										1			1	1										1			
Grandispora eximia			1										1				1	1	1								?			
Grandispora gabesensis				1																										
Grandispora inculta				1												1	1	1	1			1	1							
Grandispora libyensis				1																										
Grandispora limae																														
Grandispora mammillata				1												1	1	1	1											
Grandispora megaformis			1													1	1	1	1											
Grandispora permulta				1		*Samarisporites* sp. C	1	1		1																				
Grandispora protea			1			*Calyptosporites* cf. *proteus*			1							1	1	1	1			1	1				1			
Grandispora pseudoreticulata						*Samarisporites* sp. A, B	1	1	1	1?																				
Grandispora spp.															1															
Grandispora tabulata					1																									
Grandispora velata			1												1	1	1	1	1			1	1						Eif-ea Fra	1
Grandispora verrucosa																														
Granulatisporites muninensis																1	1	1	1											
Hystricosporites sp. cf. *H. mitratus*																														
Hystricosporites sp. *in* Ottone																														
Hystricosporites spp.			1										1				1													
Leiotriletes balapucensis																														
Leiotriletes pagius																														
Leiotriletes trivialis																														
Lophozonotriletes lebedianensis																					1								Fam	1
Lophozonotriletes media					1															1										
Lophozonotriletes spp.					1																									
Punctatisporites glaber																														
Punctatisporites picuibaensis																														
Punctatisporites planus																														
Punctatisporites spp.																														
Raistrickia aratra																	1													

Raistrickia spp.																																
Retusotriletes maculatus																																
Retusotriletes paraguayensis																																
Retusotriletes simplex																																
Retusotriletes spp.																																
Rhabdosporites langii					1	1							1																		Eif ta.-Gi te	1
Rugospora bricei							1																									
Grandispora praetervisa					1																											
Samarisporites triangulatus						1							1																		la Giv-ea Fra	1
Teichertospora torquata																																
Verruciretusispora magnifica																															Giv	1
Verruciretusispora ornata								*Tuberculatisporites* sp. A		1	1																			
Verrucosisporites bulliferus							1						1										1						1			
Verrucosisporites polygonalis															1																	
Verrucosisporites premnus						1							1					1	1	1	1			1	1			1			
Verrucosisporites scurrus						1							1					1	1	1	1				1						Giv	1
Verrucosisporites tumulentus																		1	1	1	1											
ACRITARCHS-PRASINOPHYCEA																																
Ammonidium garrasinoi																																
Ammonidium microcladum																																
Arkonites bilixus																																
Baltisphaeridium spp.																																
Baltisphaerosum spp.																																
Barbestiastra/Estiastra spp.																																
Bimerga bensonii				1	1	1	1				1																					
Cordobesia oriental				1	1	1																										
Crassiangulina tessellita																																
Crucidia camirense							1				1																					
Cymatiosphaera apiaria																																
Cymatiosphaera canadensis																																
Cymatiosphaera perimembrana																																
Cymatiosphaera sp. cf. *C. subtrita*																																
Cymatiosphaera spp.																																
Dactylofusa fastidiona																																
Daillydium pentaster																																
Dictyotidium granulatum																											1					
Dictyotidium munificum																																
Dictyotidium venulosum																																
Diexalophasis remota				1	1	1	1																									
Diexalophasis simplex																																
Duvernaysphaera angelae				1	1	1	1				Ems-Fam																					
Duvernaysphaera kraeuseli																											1					
Duvernaysphaera tenuicingulata				1	1	1	1				Ems-Fam																					
Duvernaysphaera tessella	1	1	1																													
Estiastra improcera				1	1	1																										
Estiastra rhytidoa						1	1				Ems-Fam																					
Estiastra spinulireticulata					1	1	1																									
Evittia sommeri	1	1	1			1					Ems-Fam																					
Exochoderma arca																																
Exochoderma irregularis																											1					
Exochoderma triangulata																																

Geron elegans						1	1											
Gorgonisph ohioense																		
Gorgonisphaeridium discissum																		
Gorgonisphaeridium evexispinosum																		
Gorgonisphaeridium spp.																		
Gorgonisphaeridium winslowiae																		
Hapsidopalla exornata				1	1	1	1					Giv-Fra						
Hapsidopalla invenusta						1	1					Giv						
Hapsidopalla sannemanii				1	1	1	1					Loch-Giv						
Hemiruptia legaultii																		
Hoegklintia corallina																		
Horologinella quadrispina																		
Leiofusa banderillae																		
Leiofusa estrecha																		
Leiofusa pyrena						1	1					Giv						
Leiosphaeridia spp.																		
Lophosphaeridium deminutum																		
Lophosphaeridium spp.																		
Lunulidia micropunctata							1					Fra-Fam						
Maranhites brasiliensis	?	?	1				1					Ems?Giv-Fam					1	
Maranhites britoi												Fra					1	
Maranhites insulatus												Giv?Fra-Fam						
Maranhites mosesii			1				1					Fra-Fam						
Maranhites spp.						1	1			1	1	Fra-Fam					1	
Micrhystridium sp. cf. *M. pentagonale*																		
Multipliscisphaeridium microcladum																		
Multipliscisphaeridium ramusculosum				1	1	1	1					Sil ta-Fam					1	
Navifusa bacilla	1	1	1	1	1	1	1					Ems-Fam					1	
Navifusa brasiliensis	1	1	1															
Neoveryhachium carminae																		
Onondagaella asymetrica																		
Orygmahapsis pachyderma																		
Palacanthus ledanoisii				1	1	1	1					Eif-Fam						
Petrovina connata							1											
Polyedryxium ambitum																		
Polyedryxium decorum																		
Polyedryxium embudum												Prag-Fam						
Polyedryxium fragosulum				1	1	1	1					Ems-Fra						
Polyedryxium leptum																		
Polyedryxium pharaonis				1	1	1	1					Ems-Fam					1	
Polyedryxium spp.																		
Polyedryxium talus																		
Polyedryxium tectum																		
Polygonium barredae																		
Pseudolunulidia imperatrizensis			1				1					Eifel-Giv?Fra-Fam						
Pseudolunulidia laevigata			1															
Pseudolunulidia spp.							1											
Pterospermella capitana																		
Pterospermella circumstriata				1	1	1	1											
Pterospermella pernambucensis							1					Eifel-Fam						
Pterospermella spp.																		
Pulvinosphaeridium trifidum																		

Puteoscortum polyankystrum																														
Puteoscortum willireae							1																							
Schizocystia pilosa																														
Schizocystia saharica																														
Stellinium comptum																										1				
Stellinium micropolygonale																										1				
Stellinium octoaster																														
Tasmanites spp.																														
Triangulina alargada	1			1	1								la Sil-Fras																	
Tunisphaeridium caudatum				1	1	1	1						la Sil-Fra te																	
Umbellasphaeridium armillatum																														
Umbellasphaeridium companulatum							1																							
Umbellasphaeridium deflandrei							1						Giv-Fam													1				
Umbellasphaeridium saharicum			1				1						Fra-Fam																	
Verhyachium trispininflatum																														
Verhyachium trispinosum	1	1																								1				
Veryhachium polyaster																										1				
Veryhachium spp.																														
Villosacapsula rosendae																														
Winwaloeusia distracta						1	1						Loch-Fam																	
CHITINOZOANS																														
Alpenachitina eisenacki	1	1																												
Ancyrochitina ancyrea	1	1																												
Ancyrochitina langei	1	1																												
Ancyrochitina spp.																														
Angochitina comosa																														
Angochitina galarzae																														
Angochitina mourai	1		1																											
Belonechitina holfeltzii																														
Belonechitina sp.																														
Fungochitina pilosa																														
Fungochitina sp. In Ottone																														
Lagenochitina avelinoi																														
Lagenochitina sommerii																														
Urochitina bastosi			1																											
Urochitina loboi																														
MEGASPORES																														
Aulicosporites sp.																														
Aulicosporites vitabilis																														
Biharisporites parviornatus											1									1										
CHLOROPHYCEAN ALGAE																														
Quadrisporites granulatus																														
Quadrisporites variabilis																														
Chomotriletes vendugensis																														
Botryococcus sp.																														
CRIPTOSPORES																														
Tetrahedraletes medinensis																														
Gneudaspora divellomedia																														
Total number of species in each column	13	8	11	17	30	45	42	0	0	3	6	4	2	15	11	8	11	12	26	32	32	27	3	3	9	16	14	18	0	9
Total number of species per assemblage				23	34	45	55							17	25	21	21	48	55	55	55	55			67		57	45		69