

Electronic Supplementary Information

An overview of the chemical constituents from the genus *Delphinium* reported in the last four decades

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Source	DAs	Sub-type	Ref.
<i>D. albiflorum</i>	deacetylheterophylloidine (397)	C-3	1
<i>D. alpinum</i>	alpinine (219)	B-1	2
<i>D. andersonii</i>	andersonine (252)	B-1	3
	14-deacetylnudicauline (253)	B-1	3
	andersobine (366)	C-1	4
<i>D. anhweiense</i>	anhweidelphinine (zaliline, 66)	B-1	5, 6
<i>D. anthriscifolium</i> var. <i>majus</i>	anthriscifolcone A (1)	A-1	7
	anthriscifolcone B (2)	A-1	7
	anthriscifoltine A (3)	A-1	8
	anthriscifoltine B (4)	A-1	8
	anthriscifoltine C (5)	A-1	9
	anthriscifoltine D (6)	A-1	9
	anthriscifoltine E (7)	A-1	9
	anthriscifoltine F (8)	A-1	9
	anthriscifoltine G (9)	A-1	9
	anthriscifolrine A (105)	B-1	10
	anthriscifolrine B (106)	B-1	10
	anthriscifolrine C (107)	B-1	10
	anthriscifolrine D (108)	B-1	10
	anthriscifolrine E (109)	B-1	10
	anthriscifolrine F (110)	B-1	10
	anthriscifolsine A (325)	C-1	10
	anthriscifolsine B (338)	C-1	10
	anthriscifolsine C (339)	C-1	10
	<i>D. anthriscifolium</i> var. <i>savatieri</i>	anthriscifolcine A (10)	A-1
anthriscifolcine B (11)		A-1	11
anthriscifolcine C (12)		A-1	11
anthriscifolcine D (13)		A-1	11
anthriscifolcine E (14)		A-1	11
anthriscifolcine F (15)		A-1	12
anthriscifolcine G (16)		A-1	12
anthriscifoldine A (161)		B-1	12
anthriscifoldine B (119)		B-1	12

	anthriscifoldine C (120)	B-1	12
	anthriscifolmine C (341)	C-1	13
	anthriscifolmine J (330)	C-1	14
	anthriscifolmine D (394)	C-2	15
	anthriscifolmine E (391)	C-2	15
	anthriscifolmine F (390)	C-2	15
	anthriscifolmine G (393)	C-2	15
	anthriscifolmine H (392)	C-2	15
	anthriscifolmine I (396)	C-3	14
	anthriscifolmine A (416)	C-5	13
	anthriscifolmine B (415)	C-5	13
<i>D. ajacis</i>	ajacisine A (210)	B-1	16
	ajacisine B (211)	B-1	16
	ajacisine C (212)	B-1	16
	ajacisine D (213)	B-1	16
	ajacisine E (214)	B-1	16
	ajadinine (67)	B-1	17
	19-oxoanthranoyllycotonine (255)	B-1	18
	19-oxodelphatin (35)	B-1	18
	ajabicine (407)	C-4	19
	delajacine (205)	B-1	20
	delajacirine (206)	B-1	20
	delajadine (207)	B-1	20
	ajanine (208)	B-1	20
<i>D. barbeyi</i>	barbeline (56)	B-1	21
	6-deoxydelpheline (151)	B-1	21
	14-acetyldictyocarpine (140)	B-1	22
	barbinine (249)	B-1	22
	barbinidine (148)	B-1	22
	barbaline (385)	C-2	23
	barbisine (395)	C-2	24
<i>D. barbeyi (D. occidentale)</i>	delbidine (367)	C-1	25
<i>D. bicolor</i>	bicolorine 6-O-acetate (301)	B-2	26
<i>D. bonvalotii</i>	delbine (17)	A-1	27
	delboxine (18)	A-1	27
	bonvalotidine C (118)	B-1	28
	bonvalotidine A (136)	B-1	28
	bonvalotidine B (137)	B-1	28
	delbonine (179)	B-1	27
	delbotine (180)	B-1	27
<i>D. brunonianum</i>	delbruline (104)	B-1	29
	delbrunine (114)	B-1	29
	delbrusine (138)	B-1	29
	delbruninol (121)	B-1	30

	brunonine (405)	C-4	31
<i>D. buschianum</i>	budelphine (36)	B-1	32
<i>D. campylocentrum</i>	campylocine (25)	B-1	33
	campyloine (133)	B-1	33
<i>D. caeruleum</i>	caerudelphinine A (95)	B-1	34
	caerunine (60)	B-1	35, 36
	caeruleine (264)	B-2	37
<i>D. carduchorum</i>	carduchoron (398)	C-3	38
	delcarduchol (399)	C-3	38
<i>D. carolinianum</i>	delcaroline (44)	B-1	39
<i>D. cardiopetalum</i>	cardiopine (357)	C-1	40
	cardiopinine (358)	C-1	40
	cardiopimine (359)	C-1	40
	cardiopedine (360)	C-1	40
	cardiodine (329)	C-1	40
	cardiopetamine (362)	C-1	41
	15-acetylcar cardiopetamine (363)	C-1	41
	cardiopetalidine (184)	B-1	42
	14-benzoylnudicaulidine (189)	B-1	43
	14-isobutyrylnudicaulidine (190)	B-1	43
	14-(2-methylbutyryl)nudicaulidine (191)	B-1	43
	14-cis-cinnamoylnudicaulidine (192)	B-1	43
	14-trans-cinnamoylnudicaulidine (193)	B-1	43
	cardiopetaline (259)	B-2	42
	cardiopetaline (290)	B-2	42
	8-O-methylsachaconitine (296)	B-2	43
	cardionidine (402)	C-3	44
	β -acetylhetisinone (373)	C-1	45
<i>D. cashmirianum</i>	cashmiradelphine (248)	B-1	46
<i>D. chrysotrichum</i>	delphatisine A (412)	C-4	47
	delphatisine B (411)	C-4	47
	delphatisine C (410)	C-4	48
	delphatisine D (413)	C-4	49
	chrysotrichumine A (77)	B-1	49
<i>D. confusum</i>	14-acetylnudicaulidine (198)	B-1	50
	18-deoxylycoctonine (199)	B-1	50
	14-acetylkarakoline (298)	B-2	51
	14-methylisotalatisidine (306)	B-2	52
	14-acetylkaracolone (315)	B-2	51
<i>D. corymbosum</i>	delcorinine (112)	B-1	53
	cordizine (417)	C-5	54
<i>D. corumbosum</i>	demethylenedelpheline (200)	B-1	55
	corumdephine (130)	B-1	56
	corumdefine (102)	B-1	57

<i>D. cossonianum</i>	8- <i>O</i> -cinnamoylgraciline (29)	B-1	58	
	cossonine (361)	C-1	58	
	cossonidine (davisin, 333)	C-1	59	
<i>D. crispulum</i>	delphicrispuline (22)	A-2	60	
	crispulidine (268)	B-2	60	
<i>D. cuneatum</i>	16-demethoxymethyllycaconitine (223)	B-1	61	
	16-demethoxydelavaine A (239)	B-1	62	
	16-demethoxydelavaine B (240)	B-1	62	
<i>D. cyphoplectrum</i>	cyphoplectine (272)	B-2	63	
<i>D. davisii</i>	davisinol (332)	C-1	64	
	18-benzoyldavisinol (331)	C-1	64	
<i>D. davidii</i>	davidisine A (185)	B-1	65	
	davidisine B (46)	B-1	65	
<i>D. delavayi</i> var. <i>pogonanthum</i>	delavaine A (254)	B-1	66	
	delavaine B (204)	B-1	66	
<i>D. densiflorum</i>	delphidenine (162)	B-1	67	
<i>D. denudatum</i>	1 β -hydroxy,14 β -acetylcondelphine (317)	B-2	68	
	jadwarine-A (270)	B-2	68	
	jadwarine-B (262)	B-2	68	
	8-acetylheterophyllisine (319)	B-3	69	
<i>D. elatum</i>	elapacigine (153)	B-1	70	
	<i>N</i> -deethyl- <i>N</i> -formylpaciline (39)	B-1	70	
	<i>N</i> -deethyl- <i>N</i> -formylpacinine (40)	B-1	70	
	<i>N</i> -formyl-4,19-secoyunnadelphinine (52)	B-1	70	
	isodelpheline (91)	B-1	71	
	eladine (94)	B-1	71	
	elasine (117)	B-1	71	
	19-oxoisodelpheline (31)	B-1	72	
	melpheline (89)	B-1	72	
	<i>N</i> -deethyl-19-oxoisodelpheline (33)	B-1	72	
	<i>N</i> -deethyl-19-oxodelpheline (34)	B-1	72	
	<i>N</i> -formyl-4,19-secopacinine (51)	B-1	73	
	iminoisodelpheline (53)	B-1	73	
	iminodelpheline (54)	B-1	73	
	iminopaciline (55)	B-1	73	
	6-dehydroeladine (115)	B-1	73	
	elapacidine (173)	B-1	73	
	pacifidine (65)	B-1	74	
	pacifiline (37)	B-1	74	
	pacifinine (38)	B-1	74	
	pacidine (147)	B-1	74	
	delatisine (326)	C-1	75	
	<i>(D. elatum</i> var. <i>Black Night</i>)	blacknidine (177)	B-1	76
		blacknine (122)	B-1	76

<i>D. excelsum</i>	10-hydroxymethyllycaconitine (234)	B-1	77	
	18-O-methyldeleterine (42)	B-1	77	
	10-hydroxynudicaulidine (43)	B-1	77	
<i>D. fangshanense</i>	16-demethyldelesoline (188)	B-1	78	
<i>D. flexuosum</i>	delphiniflexine (282)	B-2	79	
	flexiosine (334)	C-1	80	
<i>D. fissum</i> subsp. <i>anatolicum</i>	fissumine (364)	C-1	81	
	delfissinol (365)	C-1	81	
<i>D. formosum</i>	N-acetyldelectine (244)	B-1	82	
<i>D. laxicymosum</i> var. <i>pilostachyum</i>	laxipilostine (335)	C-1	83	
	laxipilosdine (336)	C-1	83	
	laxipilosline (337)	C-1	83	
	laxicyminine (26)	B-1	84	
	laxicymine (24)	B-1	84	
	laxicymisine (131)	B-1	84	
	<i>D. geyeri</i>	geyerine (370)	C-1	85
		geyeridine (371)	C-1	85
		geyerinine (372)	C-1	85
	<i>D. glaucescens</i>	glaucenine (141)	B-1	86
glaucerine (142)		B-1	86	
glaucephine (14-benzoyldictyocarpine, 143)		B-1	86, 87	
glaucedine (194)		B-1	86	
<i>D. glaucum</i>	geyerline (233)	B-1	88	
<i>D. giraldii</i>	giraldine A (154)	B-1	89	
	giraldine B (155)	B-1	89	
	giraldine C (156)	B-1	89	
	giraldine D (157)	B-1	90	
	giraldine E (158)	B-1	90	
	giraldine F (159)	B-1	90	
	giraldine G (228)	B-1	91	
	giraldine H (229)	B-1	91	
	giraldine I (21)	A-2	91	
<i>D. grandiflorum</i>	grandiflorine (uraline, 235)	B-1	92	
	grandifloricine (30)	B-1	93	
	grandifloticine (247)	B-1	93	
	grandiflodine B (320)	B-4	94	
	delgramine (355)	C-1	95	
	delgrandine (386)	C-2	96	
	acetylgrandine (387)	C-2	96	
	grandiflodine A (324)	C-1	94	
	<i>D. gracile</i>	gracinine (168)	B-1	97
graciline (28)		B-1	98	

	8-methoxykarakoline (283)	B-2	99
	delphigraciline (328)	C-1	99
	14-hydroxyhetisinone <i>N</i> -oxide (327)	C-1	99
<i>D. gueneri</i>	14-methyl peregrine (285)	B-2	100
	<i>N</i> -deethyl-14- <i>O</i> -methylperegrine (299)	B-2	100
	guenerin (300)	B-2	100
<i>D. gyalanum</i>	gyalanine A (216)	B-1	101
	gyalanine B (217)	B-1	101
<i>D. honanense</i>	honatisine (403)	C-4	102
<i>D. kamaonense</i> var.	glabredelphinine (160)	B-1	103
<i>glabrescens</i>			
<i>D. kohatense</i>	kohatenine (271)	B-2	104
<i>D. iliense</i>	delcoridine (123)	B-1	105
	iliensine A (90)	B-1	106
	iliensine B (124)	B-1	106
<i>D. linearilobum</i>	linearilobin (274)	B-2	107
<i>D. leptocarpum</i>	leptanine (323)	C-1	108
<i>D. leroyi</i>	leroyine 14- <i>O</i> -acetate (182)	B-1	109
	leroyine (187)	B-1	109
<i>D. macrocentrum</i>	macrocentridine (45)	B-1	110
	macrocentrine (401)	C-3	110
<i>D. majus</i>	majusine C (163)	B-1	111
	majusine A (218)	B-1	111
	majusine B (127)	B-1	111
	majusine D (164)	B-1	112
	majusidine A (346)	C-1	111
	majusidine B (347)	C-1	111
	majusimine A (388)	C-2	111
	majusimine B (389)	C-2	111
	majusimine C (379)	C-2	111
	majusimine D (384)	C-2	111
<i>D. menziesii</i>	delmenzine (103)	B-1	113
<i>D. mollipilum</i>	molline (100)	B-1	114
<i>D. munzianum</i>	14-acetyl peregrine (284)	B-2	115
	14- <i>O</i> -benzoylperegrine (292)	B-2	115
	munzianone (293)	B-2	115
	munzianine (294)	B-2	115
	10-hydroxyperegrine (266)	B-2	115
<i>D. naviculare</i> var. <i>lasiocarpum</i>	navicularine (178)	B-1	116
	naviconine (23)	A-2	117
	naviculine (75)	B-1	117
	naviconitine (273)	B-2	117
<i>D. nordhagenii</i>	nordhagenine A (113)	B-1	118
	nordhagenine B (134)	B-1	118

	nordhagenine C (135)	B-1	118
<i>D. nudicaule</i>	nudicaulamine (111)	B-1	119
	nudicauline (222)	B-1	119
	nudicaulidine (186)	B-1	119
<i>D. nuttallianum</i>	bearline (236)	B-1	120
	14-acetylbearline (237)	B-1	120
	16-deacetylgeyerline (238)	B-1	120
	desacetyl-6- <i>epi</i> pubescenine (196)	B-1	121
	delectinine 14- <i>O</i> -acetate (197)	B-1	121
	6- <i>epi</i> -pubescenine (170)	B-1	122
	nuttallianine (281)	B-2	122
	8- <i>O</i> -methylkarasamine (279)	B-2	122
	6- <i>epi</i> -neolinine (303)	B-2	122
	6- <i>epi</i> -neolinine 14- <i>O</i> -acetate (302)	B-2	121
	nuttalline (304)	B-2	121
	bicolorine 14- <i>O</i> -acetate (305)	B-2	121
	hetisine 13- <i>O</i> -acetate (340)	C-1	123
	delnuttaline (375)	C-1	124
	delnuttidine (376)	C-1	124
	delnuttine (377)	C-1	124
	karasamine 8- <i>O</i> -acetate (275)	B-2	124
	12 β -hydroxykarasamine (276)	B-2	124
	12 β -hydroxykarasamine 8- <i>O</i> -acetate (277)	B-2	124
	1- <i>epi</i> -12 β -hydroxykarasamine (278)	B-2	124
<i>D. occidentale</i>	occidentaline (149)	B-1	125
	occidentalidine (201)	B-1	125
	6-acetyldelpheline (150)	B-1	125
<i>D. orthocentrum</i>	orthocentrine (63)	B-1	126
	deacetylswinanine A (85)	B-1	126
<i>D. pacific</i>	pacinine (92)	B-1	127
	paciline (145)	B-1	127
<i>D. pentagynum</i>	dihydropentagynine (203)	B-1	128
	dihydrogadesine (183)	B-1	128
	14-acetyldihydrogadesine (195)	B-1	128
	14-demethyl-14-isobutyryl	B-1	129
	anhweidelphinine (68)		
	14-demethyl-14-acetyl	B-1	129
	anhweidelphinine (64)		
	pentagynine (258)	B-2	128
	2-dehydrodeacetylheterophylloidine (400)	C-3	129
	13-(2-methylbutyryl)azitine (406)	C-4	130
<i>D. peregrinum</i>	pergilone (166)	B-1	131

	delhiperegrine (165)	B-1	131
	peregrine (280)	B-2	132
	6-deacetyl-10-hydroxyperegrine (269)	B-2	133
<i>D. peregrinum</i> var. <i>elongatum</i>	dehydrobicoloridine (260)	B-2	134
	bicoloridine alcohol (295)	B-2	134
	peregrinine (261)	B-2	134
<i>D. pictum</i>	pictumine (313)	B-2	135
<i>D. poltoratskii</i>	delpoline (263)	B-2	136
<i>D. potaninii</i>	potanisine A (171)	B-1	137
	potanisine B (47)	B-1	137
	potanisine C (50)	B-1	138
	potanisine D (48)	B-1	138
	potanisine E (49)	B-1	138
	potanidine A (245)	B-1	139
	potanidine B (246)	B-1	139
	potanisine F (226)	B-1	140
	potanisine G (227)	B-1	140
	potanine (172)	B-1	141
	leueandine (322)	B-5	140
<i>D. potaninii</i> var. <i>jiufengshanense</i>	jiufengdine (224)	B-1	142
	jiufengtine (225)	B-1	142
<i>D. pseudoaemulans</i>	pseudophnine A (76)	B-1	143
	pseudophnine B (74)	B-1	143
	pseudophnine C (73)	B-1	143
	pseudophnine D (71)	B-1	143
	pseudorenine A (69)	B-1	143
	pseudorenine B (70)	B-1	143
	pseudonidine A (58)	B-1	143
	pseudonidine B (87)	B-1	143
<i>D. pyrimadale</i>	8-acetylcondelphine (289)	B-2	144
<i>D. retropilosum</i>	delretine (146)	B-1	145
<i>D. roylei</i>	royleinine (287)	B-2	146
<i>D. shawurense</i>	sharwuphinine B (72)	B-1	147
	shawurensine (209)	B-1	148
<i>D. sharwurense</i>	sharwuphinine A (76)	B-1	149
<i>D. siwanense</i>	siwanine F (84)	B-1	150
	siwanine E (83)	B-1	150, 102
<i>D. siwanense</i> var. <i>leptogen</i>	siwanine A (79)	B-1	151
	siwanine B (80)	B-1	151
	siwanine C (81)	B-1	151
	siwanine D (82)	B-1	151
<i>D. souliei</i>	soulidine (88)	B-1	152

	souline C (144)	B-1	153
	souline E (286)	B-2	154
	souline A (288)	B-2	155
	souline (297)	B-2	153
	souline F (349)	C-1	154
	souline B (318)	B-3	155
<i>D. stapeliosum</i>	14-demethyltuguaconitine (19)	A-1	156
	14-deacetyl-14-isobutyrylnudicauline (220)	B-1	130
	14-deacetyl-14-isobutyrylajadine (221)	B-1	130
<i>D. staphisagria</i>	staphisadrine (267)	B-2	157
	staphisadrinine (291)	B-2	157
	delstaphisinine (307)	B-2	158
	1-acetyldephisine (308)	B-2	158
	delstaphinine (256)	B-2	159
	delstaphisine (309)	B-2	160
	delstaphisagrine (310)	B-2	160
	delstaphisagnine (311)	B-2	160
	delstaphidine (257)	B-2	161
	neolinine (312)	B-2	161
	delstaphigine (314)	B-2	162
	14-O-benzoyldelphonine (265)	B-2	162
	Isoazitine (404)	C-4	163
	19-oxodihydroatisine (408)	C-4	163
	22-O-acetyl-19-oxodihydroatisine (409)	C-4	163
<i>D. taliense</i>	talitine B (97)	B-1	164
	talitine A (98)	B-1	164
	talitine C (96)	B-1	164
<i>D. tamarae</i>	norsongoramine (418)	C-6	165
<i>D. tatsienense</i>	tatsienenseine B (344)	C-1	166
	tatsienenseine C (345)	C-1	166
	tatsiensine (86)	B-1	167
	deacetylbanguine (202)	B-1	167
	delelatine (125)	B-1	168
	tatsinine (167)	B-1	169
	tatsienine-V (99)	B-1	170
	tatsienenseine A (380)	C-2	166
	tatsidine (101)	B-1	171
	deltatsine (169)	B-1	172
	tatsirine (374)	C-1	173
<i>D. tianshanicum</i>	tianshanitine A (174)	B-1	174
	tianshanitine B (175)	B-1	174
	tianshanitine C (176)	B-1	174
	tianshanitine D (116)	B-1	174

	tianshanitine E (59)	B-1	174
	tianshanisine (27)	B-1	175
	tianshanine (181)	B-1	175
	tianshanidine (57)	B-1	175
<i>D. tiantaishanense</i>	tiantaishannine (132)	B-1	176
	tiantaishanmine (61)	B-1	176
	tiantaishandine (348)	C-1	176
	tiantaishansine (20)	A-1	176
<i>D. ternatum</i>	dehydroeldelidine (126)	B-1	177
	delterine (41)	B-1	178
	terdeline (152)	B-1	179
	ternatine (356)	C-1	180
<i>D. tongolense</i>	tongoline (139)	B-1	181
	tongolenine C (62)	B-1	182
<i>D. trichophorum</i>	trichodelphinine F (419)	C-7	183
	trichodelphinine A (350)	C-1	183
	trichodelphinine B (351)	C-1	183
	trichodelphinine C (352)	C-1	183
	trichodelphinine D (353)	C-1	183
	trichodelphinine E (354)	C-1	183
<i>D. trifoliolatum</i>	trifoliolasine A (230)	B-1	184
	trifoliolasine B (231)	B-1	184
	trifoliolasine C (232)	B-1	184
	trifoliolasine D (381)	C-2	185
	trifoliolasine E (382)	C-2	185
	trifoliolasine F (383)	C-2	185
<i>D. umbrosum</i>	umbrosumine A (241)	B-1	186
	umbrosumine B (242)	B-1	186
	umbrosumine C (243)	B-1	186
<i>D. uncinatum</i>	uncinatine (414)	C-4	187
	14-acetylchasmanine (316)	B-2	188
<i>D. uralense</i>	19-oxodeltaline (32)	B-1	189
	6-oxocorumdaphine (128)	B-1	190
	18-methoxyeladine (129)	B-1	190
<i>D. venulosum</i>	venudelphine (378)	C-1	191
	venulol (368)	C-1	192
	venuluson (369)	C-1	192
<i>D. vestitum</i>	isodelectine (215)	B-1	193
	delvestine (250)	B-1	194
	delvestidine (251)	B-1	194
<i>D. yunnanense</i>	yunnanenseine B (342)	C-1	195
	yunnanenseine C (343)	C-1	195
	yunnanenseine A (321)	B-4	195
	yunnadelphinine (93)	B-1	196

Table 1S. DAs from *Delphinium* plants

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