

## Supplementary Information

**Table S1.** Polysaccharides reported in the *Ramalina* species of lichenized fungi (Fungi: Ascomycota).

No.	Class of Compounds	Compounds Name	Source ( <i>Ramalina species</i> )	References	Current Names Of Species *
1	Carbohydrates	$\alpha$ -Glucan	<i>R. celastri</i> <i>R. dendroscoides</i> <i>R. fraxinea</i> <i>R. gracilis</i> <i>R. gracilis</i> (photobiont) <i>R. peruviana</i> <i>R. peruviana</i> (mycobiont) <i>R. usnea</i>	[1–6] [7] [7] [7] [8] [7] [9] [10]	<i>R. celastri</i> <i>R. dendroscoides</i> <i>R. fraxinea</i> <i>R. gracilis</i> <i>R. gracilis</i> <i>R. peruviana</i> <i>R. peruviana</i> <i>R. australiensis</i>
2		Galactomannan	<i>R. celastri</i> <i>R. dendroscoides</i> <i>R. ecklonii</i> <i>R. fraxinea</i> <i>R. gracilis</i> <i>R. gracilis</i> (photobiont) <i>R. peruviana</i> <i>R. peruvina</i> (mycobiont) <i>R. usnea</i>	[3] [7] [1] [7] [7] [7] [8] [7] [5] [10,11]	<i>R. celastri</i> <i>R. dendroscoides</i> <i>R. ecklonii</i> <i>R. fraxinea</i> <i>R. gracilis</i> <i>R. gracilis</i> <i>R. peruviana</i> <i>R. peruviana</i> <i>R. australiensis</i>
3		Glucose	<i>R. crassa</i> (mycobiont) <i>R. sinensis</i> <i>R. fraxinea</i>	[12] [13] [14]	<i>R. siliquosa</i> <i>R. sinensis</i> <i>R. fraxinea</i>
4		Galactose	<i>R. crassa</i> (phycobiont) <i>R. fraxinea</i>	[12] [14]	<i>R. siliquosa</i> <i>R. fraxinea</i>
5		Mannose	<i>R. sinensis</i>	[13]	<i>R. sinensis</i>
6		Rhamnose	<i>R. sinensis</i> <i>R. fraxinea</i>	[13] [14]	<i>R. sinensis</i> <i>R. fraxinea</i>
7		D-Arabinol	<i>R. reticulata</i> <i>R. siliquosa</i>	[15] [16]	<i>R. menziessi</i> <i>R. siliquosa</i>

No.	Class of Compounds	Compounds Name	Source ( <i>Ramalina species</i> )	References	Current Names Of Species *
			<i>R. calicaris</i>	[17]	<i>R. calicaris</i>
			<i>R. sinensis</i>	[17]	<i>R. sinensis</i>
			<i>R. tayloriana</i>	[18]	<i>R. luciae</i>
			<i>R. yasudae</i> (photobiont)	[19]	<i>R. yasudae</i>
			<i>R. geniculata</i>	[20]	<i>R. inflata</i> subsp. <i>inflata</i>
			<i>R. scopulorum</i>	[20]	<i>R. siliquosa</i>
8		Mannitol	<i>R. fraxinea</i>	[14]	<i>R. fraxinea</i>
9		Glucosamine	<i>R. fraxinea</i>	[14]	<i>R. fraxinea</i>
10		Arabinose	<i>R. fraxinea</i>	[14]	<i>R. fraxinea</i>
11		Xylose	<i>R. fraxinea</i>	[14]	<i>R. fraxinea</i>
12		Glucoronic acid	<i>R. fraxinea</i>	[14]	<i>R. fraxinea</i>
13		Lentinan	<i>R. complanata</i>	[21]	<i>R. complanata</i>
14		Amylose	<i>R. celastri</i>	[3]	<i>R. celastri</i>
			<i>R. celastri</i> (photobiont)	[4]	<i>R. celastri</i>
			<i>R. gracilis</i> (photobiont)	[8]	<i>R. gracilis</i>
15		Galacturonic acid	<i>R. terebrata</i>	[22]	<i>R. terebrata</i>
16		Ribitol	<i>R. crassa</i> (phycobiont)	[23]	<i>R. siliquosa</i>
			<i>R. subbreviuscula</i> (phycobiont)	[23]	<i>R. subbreviuscula</i>

\* Updating scientific names validated by Index Fungorum, available at <http://www.indexfungorum.org/names/Names.asp> in May 2014.

**Table S2.** Usnic acid and derivatives reported in the *Ramalina* species of lichenized fungi (Fungi: Ascomycota).

No.	Class of Compounds	Compounds Name	Source	References	Current Names of Species *
17	Usnic acid and derivatives	Usnic acid	<i>R. africana</i> <i>R. asahinae</i> <i>R. boninensis</i> <i>R. boulhautina</i> <i>R. anceps</i> <i>R. atlantica</i> <i>R. breviuscula</i> <i>R. cactacearum</i> <i>R. calcarata</i> <i>R. calicaris</i> <i>R. campylospora</i> <i>R. capitata</i> <i>R. celastri</i> <i>R. celastri (mycobiont)</i> <i>R. ceruchis</i> <i>R. ceruchoides</i> <i>R. chilensis</i> <i>R. cochlearis</i> <i>R. combeoides</i> <i>R. complanata</i> <i>R. conduplicans</i> <i>R. crassa</i> <i>R. crassa (mycobiont)</i> <i>R. curnowii</i> <i>R. cuspidata</i> <i>R. cuspidata</i> var. <i>armorica</i> <i>R. cuspidata</i> var. <i>cuspidata</i>	[24] [25] [26,27] [28] [29–31] [32] [33] [34] [30] [9,17,35,36] [29,30] [36–38] [30,39–41] [39] [42,34] [42] [31,34,43,44] [30] [42] [29,30] [45] [32,46] [46,47] [32,36] [9,48–50] [51] [51]	<i>R. africana</i> <i>R. asahinae</i> <i>R. boninensis</i> <i>R. boulhautiana</i> <i>R. anceps</i> <i>R. cuspidata</i> <i>R. breviuscula</i> <i>R. cactacearum</i> <i>R. calcarata</i> <i>R. calicaris</i> <i>R. campylospora</i> <i>R. capitata</i> <i>R. celastri</i> <i>R. celastri</i> <i>R. ceruchis</i> <i>R. ceruchoides</i> <i>R. chilensis</i> <i>R. cochlearis</i> <i>R. combeoides</i> <i>R. complanata</i> <i>R. conduplicans</i> <i>R. siliquosa</i> <i>R. siliquosa</i> <i>R. cuspidata</i> <i>R. cuspidata</i> <i>R. cuspidata</i> <i>R. cuspidata</i>

No.	Class of Compounds	Compounds Name	Source	References	Current Names of Species *
		<i>R. cuspidate</i> var. <i>stenoclada</i>		[51]	<i>R. cuspidata</i>
		<i>R. darwiniana</i>		[29]	<i>R. darwiniana</i>
		<i>R. dendriscooides</i>		[30]	<i>R. dendriscooides</i>
		<i>R. dendroides</i>		[30]	<i>R. dendroides</i>
		<i>R. diracerata</i>		[33,52]	<i>R. diracerata</i>
		<i>R. druidarum</i>		[32]	<i>R. siliquosa</i>
		<i>R. ecklonii</i>		[34,53]	<i>R. ecklonii</i>
		<i>R. evernioides</i>		[33]	<i>R. evernioides</i>
		<i>R. farinacea</i>		[9,24,33,43,50,54–63]	<i>R. farinacea</i>
		<i>R. fastigiata</i>		[37,36]	<i>R. fastigiata</i>
		<i>R. flaccescens</i>		[34,42]	<i>R. flaccescens</i>
		<i>R. fragilis</i>		[29]	<i>R. fragilis</i>
		<i>R. fraxinea</i>		[14,27,36–38,64]	<i>R. fraxinea</i>
		<i>R. furcellangulida</i>		[29]	<i>R. furcellangulida</i>
		<i>R. geniculata</i>		[65,66]	<i>R. inflate</i> subsp. <i>inflate</i>
		<i>R. glaucescens</i>		[67]	<i>R. glaucescens</i>
		<i>R. gracilis</i>		[30]	<i>R. gracilis</i>
		<i>R. grumosa</i>		[29,30]	<i>R. grumosa</i>
		<i>R. hierrensis</i>		[68]	<i>R. hierrensis</i>
		<i>R. homalea</i>		[42]	<i>Niebla homalea</i>
		<i>R. hossei</i>		[42]	<i>R. hossei</i>
		<i>R. inanis</i>		[34]	<i>R. inanis</i>
		<i>R. inflata</i>		[40]	<i>R. inflata</i>
		<i>R. intermedia</i>		[33]	<i>R. intermedia</i>
		<i>R. kullensis</i>		[69]	<i>R. kullensis</i>
		<i>R. lacera</i>		[43]	<i>R. lacera</i>
		<i>R. landröensis</i>		[50,69]	<i>R. landröensis</i>
		<i>R. menziensis</i>		[70]	<i>R. menziensis</i>
		<i>R. minuscula</i>		[50,69]	<i>R. dilacerata</i>

No.	Class of Compounds	Compounds Name	Source	References	Current Names of Species *
		<i>R. montagnei</i>		[29]	<i>R. montagnei</i>
		<i>R. nervulosa</i>		[71]	<i>R. nervulosa</i>
		<i>R. obtusata</i>		[27,33,50,69]	<i>R. obtusata</i>
		<i>R. pacifica</i>		[40,71]	<i>R. pacifica</i>
		<i>R. paludosa</i>		[72]	<i>R. paludosa</i>
		<i>R. peranceps</i>		[31,73]	<i>R. peranceps</i>
		<i>R. peruviana</i>		[30,34]	<i>R. peruviana</i>
		<i>R. pollinaria</i>		[27,37,59,66,74,75]	<i>R. pollinaria</i>
		<i>R. polyforma</i>		[29]	<i>R. polyforma</i>
		<i>R. polymorpha</i>		[36,37,59]	<i>R. polymorpha</i>
		<i>R. prolifera</i>		[30]	<i>R. prolifera</i>
		<i>R. puiggarii</i>		[30]	<i>R. puiggarii</i>
		<i>R. pusilla</i>		[30]	<i>R. inflate</i> subsp. <i>australis</i>
		<i>R. rectangularis</i>		[30]	<i>R. rectangularis</i>
		<i>R. reticulata</i>		[15,27,33,76,77]	<i>R. menziesii</i>
		<i>R. rigida</i>		[30]	<i>R. rigida</i>
		<i>R. roesleri</i>		[78]	<i>R. roesleri</i>
		<i>R. scorpulorum</i>		[16,49,50,69,79]	<i>R. siliquosa</i>
		<i>R. sekika</i>		[27]	<i>R. sekika</i>
		<i>R. sharpii</i>		[31]	<i>R. sharpii</i>
		<i>R. sideriza</i>		[29]	<i>R. sideriza</i>
		<i>R. siliquosa</i>		[9,16,32,47]	<i>R. siliquosa</i>
		<i>R. siliquosa</i> var. <i>crassa</i>		[51]	<i>R. siliquosa</i>
		<i>R. siliquosa</i> var. <i>siliquosa</i>		[51]	<i>R. siliquosa</i>
		<i>R. siliquosa</i> var. <i>x</i>		[51]	<i>R. siliquosa</i>
		<i>R. siliquosa</i> var. <i>zopfi</i>		[51]	<i>R. siliquosa</i>
		<i>R. sinensis</i>		[17,80]	<i>R. sinensis</i>
		<i>R. sorediantha</i>		[29]	<i>R. sorediantha</i>

No.	Class of Compounds	Compounds Name	Source	References	Current Names of Species *
			<i>R. sorediosa</i>	[29,30]	<i>R. sorediosa</i>
			<i>R. stenoclada</i>	[32]	<i>R. cuspidata</i>
			<i>R. stenospora</i>	[81]	<i>R. stenospora</i>
			<i>R. subcomplanata</i>	[43,82]	<i>R. subcomplanata</i>
			<i>R. subfarinacea</i>	[9,36,50,69]	<i>R. subfarinacea</i>
			<i>R. subpollinaria</i>	[30]	<i>R. subpollinaria</i>
			<i>R. terebrata</i>	[83–85]	<i>R. terebrata</i>
			<i>R. tingitana</i>	[86]	<i>R. tingitana</i>
			<i>R. tayloriana</i>	[18]	<i>R. luciae</i>
			<i>R. thrausta</i>	[50]	<i>R. thrausta</i>
			<i>R. tumidula</i>	[34]	<i>R. tumidula</i>
			<i>R. usnea</i>	[29–31,87]	<i>R. australiensis</i>
			<i>R. yasudae</i>	[43,65]	<i>R. yasudae</i>
			<i>R. yasudae (mycobiont)</i>	[46]	<i>R. yasudae</i>
18		Usimine A	<i>R. terebrata</i>	[83,85,88,89]	<i>R. terebrata</i>
19		Usimine B	<i>R. terebrata</i>	[83,85,88,89]	<i>R. terebrata</i>
20		Usimine C	<i>R. terebrata</i>	[83,85,88,89]	<i>R. terebrata</i>
21		<i>Iso-usnic acid</i>	<i>R. hierrensis</i>	[68]	<i>R. hierrensis</i>
22		Usninic acid	<i>R. bornholmiensis</i>	[50]	<i>R. bornholmiensis</i>
			<i>R. calicaris</i>	[35]	<i>R. calicaris</i>
			<i>R. cuspidata</i>	[50]	<i>R. cuspidata</i>
			<i>R. farinacea</i>	[50]	<i>R. farinacea</i>
			<i>R. landroënsis</i>	[50]	<i>R. landroënsis</i>
			<i>R. minuscula</i>	[50]	<i>R. dilacerata</i>
			<i>R. obtusata</i>	[50]	<i>R. obtusata</i>
			<i>R. scopulorum</i>	[50]	<i>R. siliquosa</i>
			<i>R. subfarinacea</i>	[50]	<i>R. subfarinacea</i>
			<i>R. thrausta</i>	[50]	<i>R. thrausta</i>

\* Updating scientific names validated by Index Fungorum, available at <http://www.indexfungorum.org/names/Names.asp> in May 2014.

**Table S3.** Depsides reported in the *Ramalina* species of lichenized fungi (Fungi: Ascomycota).

No.	Class of Compounds	Compounds Name	Source ( <i>Ramalina</i> species)	References	Current Names of Species *
23	Depsides	Sekikaic acid	<i>R. boulhautina</i> <i>R. calicaris</i> <i>R. conduplicans</i> <i>R. chilensis</i> <i>R. cochlearis</i> <i>R. darwiniana</i> <i>R. farinacea</i> <i>R. farinacea</i> var. <i>nervulosa</i> <i>R. fragilis</i> <i>R. fraxinea</i> <i>R. furcellangulida</i> <i>R. geniculata</i> <i>R. glaucescens</i> <i>R. hossei</i> <i>R. luciae</i> <i>R. montagnei</i> <i>R. nervulosa</i> <i>R. peruviana</i> <i>R. polyforma</i> <i>R. pusiola</i> <i>R. roesleri</i> <i>R. sekika</i> <i>R. sorediosa</i> (race II) <i>R. subcomplanata</i> <i>R. subpollinaria</i> (race I) <i>R. tayloriana</i> <i>R. usnea</i>	[28,47] [17,27] [45,90] [31,44] [30] [29] [9,54,60,66,91] [27] [29] [14] [29] [27,43,66] [43,67] [45,92] [93] [29] [71,94] [30,43,95] [29] [30] [78] [27] [30] [94] [30] [18,43] [30,31,87]	<i>R. boulhautiana</i> <i>R. calicaris</i> <i>R. conduplicans</i> <i>R. chilensis</i> <i>R. cochlearis</i> <i>R. darwiniana</i> <i>R. farinacea</i> <i>R. farinacea</i> <i>R. fragilis</i> <i>R. fraxinea</i> <i>R. furcellangulida</i> <i>R. inflata</i> subsp. <i>inflata</i> <i>R. glaucescens</i> <i>R. hossei</i> <i>R. luciae</i> <i>R. montagnei</i> <i>R. nervulosa</i> <i>R. peruviana</i> <i>R. polyforma</i> <i>R. pusiola</i> <i>R. roesleri</i> <i>R. sekika</i> <i>R. sorediosa</i> <i>R. subcomplanata</i> <i>R. subpollinaria</i> <i>R. luciae</i> <i>R. australiensis</i>

No.	Class of Compounds	Compounds Name	Source ( <i>Ramalina species</i> )	References	Current Names of Species *
24		Atranorim	<i>R. celastri</i> <i>R. combeoides</i> <i>R. complanata</i> <i>R. darwiniana</i> <i>R. dendriscoides</i> <i>R. ecklonii</i> <i>R. fragilis</i> <i>R. furcellangulida</i> <i>R. glaucescens</i> <i>R. hierrensis</i> <i>R. pacifica</i> <i>R. paludosa</i> <i>R. peruviana</i> (mycobiont) <i>R. roesleri</i> <i>R. siliquosa</i> <i>R. stenospora</i> <i>R. subcomplanata</i> <i>R. subpollinaria</i> <i>R. aspera</i> (race I) <i>R. calcarata</i> <i>R. complanata</i> (race I) <i>R. darwiniana</i> <i>R. furcellangulida</i> <i>R. hierrensis</i> <i>R. homalea</i> <i>R. menziesii</i> <i>R. polyformae</i> <i>R. subbreviuscula</i> <i>R. usnea</i>	[30] [42] [30] [29] [30] [53] [29] [29] [67] [68] [40] [72] [95] [78] [16,47] [81] [82] [30] [30] [30] [30] [29] [29] [68] [42] [70] [29] [96] [87]	<i>R. celastri</i> <i>R. combeoides</i> <i>R. complanata</i> <i>R. darwiniana</i> <i>R. dendriscoides</i> <i>R. ecklonii</i> <i>R. fragilis</i> <i>R. furcellangulida</i> <i>R. glaucescens</i> <i>R. hierrensis</i> <i>R. pacifica</i> <i>R. paludosa</i> <i>R. peruviana</i> <i>R. roesleri</i> <i>R. siliquosa</i> <i>R. stenospora</i> <i>R. subcomplanata</i> <i>R. subpollinaria</i> <i>R. aspera</i> <i>R. calcarata</i> <i>R. complanata</i> <i>R. darwiniana</i> <i>R. furcellangulida</i> <i>R. hierrensis</i> <i>Niebla homalea</i> <i>R. menziesii</i> <i>R. polyformae</i> <i>R. subbreviuscula</i> <i>R. australiensis</i>
25		Divaricatic acid			

No.	Class of Compounds	Compounds Name	Source ( <i>Ramalina species</i> )	References	Current Names of Species *
26	Homosekikaic acid		<i>R. usnea</i> (race II)	[30]	<i>R. australiensis</i>
			<i>R. cochlearis</i>	[30]	<i>R. cochlearis</i>
			<i>R. conduplicans</i>	[90]	<i>R. conduplicans</i>
			<i>R. luciae</i>	[93]	<i>R. luciae</i>
			<i>R. nervulosa</i>	[94]	<i>R. nervulosa</i>
			<i>R. peruviana</i>	[30,95]	<i>R. peruviana</i>
			<i>R. pusiola</i>	[30]	<i>R. pusiola</i>
			<i>R. roesleri</i>	[78]	<i>R. roesleri</i>
			<i>R. sorediosa</i>	[30]	<i>R. sorediosa</i>
			<i>R. subcomplanata</i>	[94]	<i>R. subcomplanata</i>
27	Ramalinoic acid		<i>R. subpollinaria</i>	[30]	<i>R. subpollinaria</i>
			<i>R. usnea</i>	[30]	<i>R. australiensis</i>
			<i>R. calicaris</i>	[27,47]	<i>R. calicaris</i>
			<i>R. cochlearis</i>	[30]	<i>R. cochlearis</i>
			<i>R. farinacea</i>	[27,43,97]	<i>R. farinacea</i>
			<i>R. geniculata</i>	[27]	<i>R. inflata</i> subsp. <i>Inflat</i>
			<i>R. intermediella</i>	[27,97]	<i>R. intermediella</i>
			<i>R. nervulosa</i>	[47]	<i>R. nervulosa</i>
			<i>R. obtusata</i>	[69]	<i>R. obtusata</i>
			<i>R. peruviana</i>	[43,95]	<i>R. peruviana</i>
28	Obtusatic acid		<i>R. usnea</i>	[87]	<i>R. australiensis</i>
			<i>R. usneoides</i>	[27]	<i>R. australiensis</i>
			<i>R. calicaris</i>	[9,35]	<i>R. calicaris</i>
			<i>R. farinacea</i>	[24,57]	<i>R. farinacea</i>
			<i>R. fraxinea</i>	[14]	<i>R. fraxinea</i>
			<i>R. mediterranea</i>	[98]	<i>R. mediterranea</i>
			<i>R. obtusata</i>	[27,47,52,69]	<i>R. obtusata</i>
			<i>R. pollinaria</i>	[27]	<i>R. pollinaria</i>
			<i>R. sekika</i>	[27]	<i>R. sekika</i>

No.	Class of Compounds	Compounds Name	Source ( <i>Ramalina species</i> )	References	Current Names of Species *
29		Tumidulin	<i>R. ceruchis</i> <i>R. chilensis</i> <i>R. flaccescens</i> <i>R. inanis</i> <i>R. peruviana</i> <i>R. tumidula</i>	[34,99] [34,44] [34,99] [34] [34] [34,100]	<i>R. ceruchis</i> <i>R. chilensis</i> <i>R. flaccescens</i> <i>R. inanis</i> <i>R. peruviana</i> <i>R. tumidula</i>
30		4'- <i>O</i> -demethylsekikaic acid	<i>R. americana</i> <i>R. cochlearis</i> <i>R. farinacea</i> <i>R. peruviana</i> <i>R. sorediosa</i> <i>R. usnea</i> (races I and II)	[47] [30] [47] [30,95] [30] [30]	<i>R. Americana</i> <i>R. cochlearis</i> <i>R. farinacea</i> <i>R. peruviana</i> <i>R. sorediosa</i> <i>R. australiensis</i>
31		Evernic acid	<i>R. calicaris</i> <i>R. commixta</i> <i>R. farinacea</i> <i>R. mediterranea</i> <i>R. pollinaria</i> <i>R. yasudae</i>	[9,35] [27] [24,57] [98] [27,59,66,74,75] [47,101]	<i>R. calicaris</i> <i>R. commixta</i> <i>R. farinacea</i> <i>R. mediterranea</i> <i>R. pollinaria</i> <i>R. yasudae</i>
32		4'- <i>O</i> -methylnorhomosekikaic acid	<i>R. cochlearis</i> <i>R. farinacea</i> <i>R. peruviana</i> <i>R. pusiola</i> <i>R. subcomplanata</i> <i>R. usnea</i> (races I and II)	[30] [54] [30] [30] [94] [30]	<i>R. cochlearis</i> <i>R. farinacea</i> <i>R. peruviana</i> <i>R. pusiola</i> <i>R. subcomplanata</i> <i>R. australiensis</i>
33		4'- <i>O</i> -methylnorsekikaic acid	<i>R. cochlearis</i> <i>R. farinacea</i> <i>R. usnea</i> (races I and II)	[30] [47,54] [30]	<i>R. cochlearis</i> <i>R. farinacea</i> <i>R. australiensis</i>
34		2'- <i>O</i> -methylsekikaic acid	<i>R. asahinae</i>	[25,30,47,102]	<i>R. asahinae</i>

No.	Class of Compounds	Compounds Name	Source ( <i>Ramalina species</i> )	References	Current Names of Species *
35		Chloroatranorin	<i>R. grumosa</i> <i>R. sorediosa</i> <i>R. siliquosa</i> <i>R. stenospora</i> <i>R. subcomplanata</i>	[30] [30] [16] [81] [82]	<i>R. grumosa</i> <i>R. sorediosa</i> <i>R. siliquosa</i> <i>R. stenospora</i> <i>R. complanata</i>
36		Chryptochorophaeic acid	<i>R. aspera</i> (race II) <i>R. paludosa</i>	[30] [72,81]	<i>R. aspera</i> <i>R. paludosa</i>
37		4'- <i>O</i> -demethylhomosekikaic acid	<i>R. peruviana</i> <i>R. usnea</i> (races I and II)	[30] [30]	<i>R. peruviana</i> <i>R. australiensis</i>
38		Diffractaic acid	<i>R. lacera</i> <i>R. subcomplanata</i>	[43] [43,82]	<i>R. lacera</i> <i>R. subcomplanata</i>
39		4- <i>O</i> -demethylbarbatic acid	<i>R. siliquosa</i> (mycobiont) <i>R. siliquosa</i> var. <i>Zopfi</i>	[103] [47,51]	<i>R. siliquosa</i> <i>R. siliquosa</i>
40		Ramalinaic acid	<i>R. subdecipiens</i> <i>R. americana</i> <i>R. farinacea</i>	[47] [47] [61]	<i>R. subdecipiens</i> <i>R. americana</i> <i>R. farinacea</i>
41		Gyrophoric acid	<i>R. americana</i>	[43]	<i>R. americana</i>
42		Trivaric acid	<i>R. americana</i>	[43,104]	<i>R. americana</i>
43		Perlatolic acid	<i>R. stenospora</i>	[81]	<i>R. stenospora</i>
44		4- <i>O</i> -demethylnorhomosekikaic acid	<i>R. peruvina</i>	[30]	<i>R. peruviana</i>
45		4'- <i>O</i> -methylsekikaic acid	<i>R. asahinae</i>	[30]	<i>R. asahinae</i>
46		4'- <i>O</i> -methylpaludosic acid	<i>R. asahinae</i>	[30,102]	<i>R. asahinae</i>
47		4,4'-di- <i>O</i> - methylcryptochlorophaeic acid	<i>R. asahinae</i>	[102]	<i>R. asahinae</i>
48		Boninic acid	<i>R. asahinae</i>	[25,26]	<i>R. asahinae</i>
49		Stenosporic acid	<i>R. stenospora</i>	[47,81]	<i>R. stenospora</i>
50		5-Hydroxysekikaic acid	<i>R. farinacea</i>	[91]	<i>R. farinacea</i>
51		5-Chlorosekikaic acid	<i>R. glaucescens</i>	[67]	<i>R. glaucescens</i>
52		Olivetoric acid	<i>R. leiodea</i>	[105]	<i>R. leiodea</i>

No.	Class of Compounds	Compounds Name	Source ( <i>Ramalina species</i> )	References	Current Names of Species *
53		Paludosic acid	<i>R. paludosa</i>	[72]	<i>R. paludosa</i>
54		4-O-methyl-oxocryptochlorophaeic acid	<i>R. subfraxinea</i>	[106]	<i>R. subfraxinea</i>
55		Lecanoric acid	<i>R. lacera</i>	[43]	<i>R. lacera</i>
56		Bourgeanic acid	<i>R. bourgeana</i>	[107,108]	<i>R. bourgeana</i>

\* Updating scientific names validated by Index Fungorum, available at <http://www.indexfungorum.org/names/NAMES.asp> in May 2014.

**Table S4.** Depsidones reported in the *Ramalina* species of lichenized fungi (Fungi: Ascomycota).

No.	Class of Compounds	Compounds Name	Source ( <i>Ramalina species</i> )	References	Current Names of Species *
57	Depsidones	Salazinic acid	<i>R. anceps</i> <i>R. angustissima</i> <i>R. calcarata</i> <i>R. chilensis</i> <i>R. complanata</i> <i>R. complanata</i> (races I and II) <i>R. crassa</i> <i>R. crassa</i> (mycobiont) <i>R. darwiniana</i> <i>R. dendriscoides</i> <i>R. farinacea</i> <i>R. furcellangulida</i> <i>R. nervulosa</i> <i>R. pacifica</i> <i>R. peranceps</i> <i>R. polyformata</i> <i>R. rectangularis</i> <i>R. rigida</i>	[31] [27] [30] [31,43] [29] [30] [32,47] [46] [29] [30] [43,54,109] [29] [47] [71] [31] [29] [30] [30]	<i>R. anceps</i> <i>R. subfarinacea</i> <i>R. calcarata</i> <i>R. chilensis</i> <i>R. complanata</i> <i>R. complanata</i> <i>R. siliquosa</i> <i>R. siliquosa</i> <i>R. darwiniana</i> <i>R. dendriscoides</i> <i>R. farinacea</i> <i>R. furcellangulida</i> <i>R. nervulosa</i> <i>R. pacifica</i> <i>R. peranceps</i> <i>R. polyformata</i> <i>R. rectangularis</i> <i>R. rigida</i>

No.	Class of Compounds	Compounds Name	Source ( <i>Ramalina species</i> )	References	Current Names of Species *
58	Norstictic acid		<i>R. scopulorum</i>	[16,79]	<i>R. siliquosa</i>
			<i>R. sharpie</i>	[31]	<i>R. sharpie</i>
			<i>R. siliquosa</i>	[47]	<i>R. siliquosa</i>
			<i>R. siliquosa</i> var. <i>crassa</i>	[47,51]	<i>R. siliquosa</i>
			<i>R. siliquosa</i> (mycobiont)	[103]	<i>R. siliquosa</i>
			<i>R. subbreviscula</i>	[96]	<i>R. subbreviscula</i>
			<i>R. subcomplanata</i>	[94]	<i>R. subcomplanata</i>
			<i>R. subfarinacea</i> var. <i>reagens</i>	[58]	<i>R. subfarinacea</i>
			<i>R. subfarinacea</i> var. <i>salazinic</i>	[58]	<i>R. subfarinacea</i>
			<i>R. sorediosa</i> (races I, II and III)	[30]	<i>R. sorediosa</i>
			<i>R. subfarinacea</i>	[9,33,43,50,69]	<i>R. subfarinacea</i>
			<i>R. subpollinaria</i> (races I, II and III)	[30]	<i>R. subpollinaria</i>
			<i>R. yasudae</i>	[47,65]	<i>R. yasudae</i>
			<i>R. yasudae</i> (mycobiont)	[46]	<i>R. yasudae</i>
			<i>R. anceps</i>	[30,31]	<i>R. anceps</i>
			<i>R. angustissima</i>	[27]	<i>R. subfarinacea</i>
			<i>R. arabum</i>	[43]	<i>R. arabum</i>
			<i>R. chilensis</i>	[31,43,44]	<i>R. chilensis</i>
			<i>R. curnowii</i>	[32]	<i>R. cuspidata</i>
			<i>R. cuspidata</i> var. <i>cuspidata</i>	[51]	<i>R. cuspidata</i>
			<i>R. cuspidata</i> var. <i>stenoclada</i>	[51]	<i>R. cuspidata</i>
			<i>R. farinacea</i>	[43,55,58,60,109]	<i>R. farinacea</i>
			<i>R. gracilis</i> (race II)	[30]	<i>R. gracilis</i>
			<i>R. lacera</i>	[43]	<i>R. lacera</i>
			<i>R. peranceps</i>	[47]	<i>R. peranceps</i>
			<i>R. pusiola</i>	[30]	<i>R. pusiola</i>
			<i>R. sharpii</i>	[31]	<i>R. sharpii</i>
			<i>R. siliquosa</i>	[9]	<i>R. siliquosa</i>
			<i>R. stenoclada</i>	[32]	<i>R. cuspidata</i>

No.	Class of Compounds	Compounds Name	Source ( <i>Ramalina species</i> )	References	Current Names of Species *
59	Hypoprotocetraric acid		<i>R. subfarinacea</i>	[43]	<i>R. subfarinacea</i>
			<i>R. subfarinacea</i> var. <i>subfarinacea</i>	[110]	<i>R. subfarinacea</i>
			<i>R. subfarinacea</i> var. <i>reagens</i>	[110]	<i>R. subfarinacea</i>
			<i>R. druidarum</i>	[32]	<i>R. siliquosa</i>
			<i>R. cuspidata</i> var. <i>armorica</i>	[51]	<i>R. cuspidata</i>
			<i>R. cuspidata</i> var. <i>cuspidata</i>	[51]	<i>R. cuspidata</i>
			<i>R. farinacea</i>	[109]	<i>R. farinacea</i>
60	Scopuloric acid (or stictic)		<i>R. hypoprotocetraric</i>	[47]	<i>R. farinacea</i>
			<i>R. siliquosa</i>	[16,111]	<i>R. siliquosa</i>
			<i>R. siliquosa</i> var. <i>druidarum</i>	[51]	<i>R. siliquosa</i>
			<i>R. tumidula</i>	[47]	<i>R. tumidula</i>
			<i>R. combeoides</i>	[42]	<i>R. combeoides</i>
			<i>R. curnowii</i>	[32]	<i>R. cuspidata</i>
			<i>R. cuspidata</i> var. <i>armorica</i>	[51]	<i>R. cuspidata</i>
61	Protocetraric acid		<i>R. cuspidata</i> var. <i>cuspidata</i>	[51]	<i>R. cuspidata</i>
			<i>R. hierrensis</i>	[68]	<i>R. hierrensis</i>
			<i>R. scopulorum</i>	[16,27,69,79]	<i>R. siliquosa</i>
			<i>R. farinacea</i>	[9,27,55,58,109]	<i>R. farinacea</i>
			<i>R. lacera</i>	[112]	<i>R. lacera</i>
			<i>R. pacifica</i>	[112]	<i>R. pacifica</i>
			<i>R. siliquosa</i>	[16,32]	<i>R. siliquosa</i>
62	Connorstictic acid		<i>R. siliquosa</i> (mycobiont)	[3]	<i>R. siliquosa</i>
			<i>R. siliquosa</i> var. <i>siliquosa</i>	[30,31]	<i>R. siliquosa</i>
63	Criptostictic acid		<i>R. anceps</i>	[30]	<i>R. anceps</i>
			<i>R. cuspidata</i> var. <i>armorica</i>	[51]	<i>R. cuspidata</i>
64	Peristictic acid		<i>R. cuspidata</i> var. <i>cuspidata</i>	[51]	<i>R. cuspidata</i>
			<i>R. cuspidata</i> var. <i>armorica</i>	[51]	<i>R. cuspidata</i>
65	Conhypoprotocetraric acid		<i>R. siliquosa</i> var. x	[51]	<i>R. siliquosa</i>
			<i>R. hierrensis</i>	[68]	<i>R. hierrensis</i>
66	Variolaric acid				

No.	Class of Compounds	Compounds Name	Source ( <i>Ramalina species</i> )	References	Current Names of Species *
67		Gangaleodin	<i>R. hierrensis</i>	[68]	<i>R. hierrensis</i>
68		Physodic acid	<i>R. leiodea</i>	[105]	<i>R. leiodea</i>
69		Coquimboic acid	<i>R. tumidula</i>	[113]	<i>R. tumidula</i>

\* Updating scientific names validated by Index Fungorum, available at <http://www.indexfungorum.org/names/NAMES.asp> in May 2014.

**Table S5.** Fatty acids reported in the *Ramalina* species of lichenized fungi (Fungi: Ascomycota).

No.	Class of Compounds	Compounds Name	Source ( <i>Ramalina species</i> )	References	Current Names of Species *
70	Fatty acids	Oleic acid	<i>R. lacera</i> <i>R. celastri</i> (mycobiont) <i>R. yasudae</i>	[43] [41] [114]	<i>R. lacera</i> <i>R. celastri</i> <i>R. yasudae</i>
71		Palmitic acid	<i>R. lacera</i> <i>R. celastri</i> (mycobiont)	[114] [41]	<i>R. lacera</i> <i>R. celastri</i>
72		Stearic acid	<i>R. lacera</i> <i>R. celastri</i> (mycobiont) <i>R. yasudae</i>	[43] [41] [114]	<i>R. lacera</i> <i>R. celastri</i> <i>R. yasudae</i>
73		α-Linolenic	<i>R. celastri</i> (mycobiont) <i>R. yasudae</i>	[43] [114]	<i>R. celastri</i> <i>R. yasudae</i>
74		Linoleic acid	<i>R. yasudae</i>	[114]	<i>R. yasudae</i>
75		Myristic acid	<i>R. yasudae</i>	[114]	<i>R. yasudae</i>
76		Arachidonic acid	<i>R. yasudae</i>	[114]	<i>R. yasudae</i>
77		D-Protolichesterinic acid	<i>R. almquistii</i> <i>R. roesleri</i>	[24,115] [78]	<i>R. almquistii</i> <i>R. roesleri</i>
78		Nephrosterinic acid	<i>R. almquistii</i>	[24,115]	<i>R. almquistii</i>

\* Updating scientific names validated by Index Fungorum, available at <http://www.indexfungorum.org/names/NAMES.asp> in May 2014.

**Table S6.** Other compounds—Carotenoids reported in the *Ramalina* species of lichenized fungi (Fungi: Ascomycota).

No.	Class of Compounds	Compounds Name	Source ( <i>Ramalina</i> species)	References	Current Names of Species *
79	Carotenoids	β-Cryptoxanthin	<i>R. ecklonii</i> <i>R. usnea</i>	[116]	<i>R. ecklonii</i> <i>R. australiensis</i>
80		Lutein epoxide	<i>R. ecklonii</i> <i>R. usnea</i>	[116]	<i>R. ecklonii</i> <i>R. australiensis</i>
81		Violaxanthin	<i>R. ecklonii</i>	[116]	<i>R. ecklonii</i>
82		Auroxanthin	<i>R. ecklonii</i> <i>R. usnea</i>	[116]	<i>R. ecklonii</i> <i>R. australiensis</i>
83		Astaxanthin	<i>R. celastri</i> <i>R. usnea</i>	[117]	<i>R. celastri</i> <i>R. australiensis</i>
84		Mutatoxanthin	<i>R. usnea</i>	[116]	<i>R. australiensis</i>
85		Lycoxanthin	<i>R. ecklonii</i>	[116]	<i>R. ecklonii</i>
86		Antheroxanthin	<i>R. ecklonii</i> <i>R. usnea</i>	[116]	<i>R. ecklonii</i> <i>R. australiensis</i>
87		ε-Carotene	<i>R. usnea</i>	[116]	<i>R. australiensis</i>
88		Zeaxanthin	<i>R. celastri</i>	[117]	<i>R. celastri</i>
89		β-Carotene	<i>R. celastri</i>	[117]	<i>R. celastri</i>
90		α-Doradexanthin	<i>R. celastri</i>	[117]	<i>R. celastri</i>
91		Lutein	<i>R. celastri</i> <i>R. usnea</i>	[117]	<i>R. celastri</i> <i>R. australiensis</i>
92		Hydroxyechinenone	<i>R. ecklonii</i>	[116]	<i>R. ecklonii</i>
93		Diatoxanthin	<i>R. ecklonii</i>	[116]	<i>R. ecklonii</i>
94		Neoxanthin	<i>R. ecklonii</i> <i>R. usnea</i>	[116]	<i>R. ecklonii</i> <i>R. australiensis</i>
95		Rhodoxanthin	<i>R. ecklonii</i> <i>R. usnea</i>	[116]	<i>R. ecklonii</i> <i>R. australiensis</i>

\* Updating scientific names validated by Index Fungorum, available at <http://www.indexfungorum.org/names/NAMES.asp> in May 2014.

**Table S7.** Other compounds—Steroids and terpenoids reported in the *Ramalina* species of lichenized fungi (Fungi: Ascomycota).

No.	Class of Compounds	Compounds Name	Source ( <i>Ramalina</i> species)	Refences	Current Names of Species *
96	Steroids	$\alpha$ -Sitosterol	<i>R. africana</i> <i>R. hierrensis</i>	[24] [68]	<i>R. africana</i> <i>R. hierrensis</i>
97		Brassicasterol	<i>R. africana</i> <i>R. tingitana</i>	[24] [86]	<i>R. africana</i> <i>R. tingitana</i>
98		Lichesterol	<i>R. africana</i>	[24]	<i>R. africana</i>
99		Ergosterol peroxide	<i>R. hierrensis</i> <i>R. tingitana</i>	[68] [86]	<i>R. hierrensis</i> <i>R. tingitana</i>
100		Cerevisterol	<i>R. hierrensis</i>	[68]	<i>R. hierrensis</i>
101	Terpenoids	Ursolic acid	<i>R. hierrensis</i>	[68]	<i>R. hierrensis</i>
102		<i>Iso</i> -arborinol acetate	<i>R. hierrensis</i>	[68]	<i>R. hierrensis</i>
103		Friedelin	<i>R. ecklonii</i>	[53]	<i>R. ecklonii</i>
104		(–)-Sandaracopimamic acid	<i>R. hierrensis</i>	[68]	<i>R. hierrensis</i>
105		Ceruchinol	<i>R. ceruchis</i> var. <i>tumidula</i> <i>R. tigrina</i>	[118] [119]	<i>R. ceruchis</i> <i>R. tigrina</i>

\* Updating scientific names validated by Index Fungorum, available at <http://www.indexfungorum.org/names/Names.asp> in May 2014.

**Table S8.** Other compounds—Lipids and amines reported in the *Ramalina* species of lichenized fungi (Fungi: Ascomycota).

No.	Class of Compounds	Compounds Name	Source ( <i>Ramalina</i> species)	References	Current Names of Species *
106	Lipids	Diacylglycerol- <i>N,N,N</i> -trimethylhomoserine	<i>R. lacera</i>	[43]	<i>R. lacera</i>
107		Diacylglyceryltrimethylalanine	<i>R. lacera</i>	[43]	<i>R. lacera</i>
108		Phosphatidylcholine	<i>R. lacera</i>	[43]	<i>R. lacera</i>
109		Phosphatidyletanolamine	<i>R. lacera</i>	[43]	<i>R. lacera</i>
110		Phosphatidylinositol	<i>R. lacera</i>	[43]	<i>R. lacera</i>
111		Phosphatidic acid	<i>R. lacera</i>	[43]	<i>R. lacera</i>
112		Sulfoquinovosyldiacylglycerol	<i>R. lacera</i>	[43]	<i>R. lacera</i>
113		Monogalactosyldiacylglycerol	<i>R. celastri</i>	[120]	<i>R. celastri</i>
			<i>R. lacera</i>	[43]	<i>R. lacera</i>
114		Gigalactosyldiacylglycerol	<i>R. celastri</i>	[120]	<i>R. celastri</i>
			<i>R. lacera</i>	[43]	<i>R. lacera</i>
115		<i>O</i> - $\beta$ -D-Galactopyranosyl-(1 $\rightarrow$ 1')-ceramide	<i>R. celastri</i>	[121]	<i>R. celastri</i>
116	Amines	Choline	<i>R. fraxinea</i>	[14]	<i>R. fraxinea</i>
117		Betaine	<i>R. fraxinea</i>	[14]	<i>R. fraxinea</i>
118		Histamine	<i>R. fraxinea</i>	[14]	<i>R. fraxinea</i>
119		Acetylcholine	<i>R. fraxinea</i>	[14]	<i>R. fraxinea</i>
120		$\beta$ -Fenethylamine	<i>R. fraxinea</i>	[14]	<i>R. fraxinea</i>
121		Spermidine	<i>R. farinacea</i>	[122]	<i>R. farinacea</i>
122		Putrescine	<i>R. farinacea</i>	[123,124]	<i>R. farinacea</i>
123		Spermine	<i>R. calicaris</i>	[124]	<i>R. calicaris</i>

\* Updating scientific names validated by Index Fungorum, available at <http://www.indexfungorum.org/names/Names.asp> in May 2014.

**Table S9.** Other compounds—Amino acids reported in the *Ramalina* species of lichenized fungi (Fungi: Ascomycota).

No.	Class of Compounds	Compounds Name	Source ( <i>Ramalina</i> species)	References	Current Names of Species *
124	Amino acids	Glutamic acid	<i>R. celastri</i> (photobiont)	[4]	<i>R. celastri</i>
			<i>R. fraxinea</i>	[14]	<i>R. fraxinea</i>
			<i>R. siliquosa</i>	[125]	<i>R. siliquosa</i>
125		Aspartic acid	<i>R. celastri</i> (photobiont)	[4]	<i>R. celastri</i>
			<i>R. fraxinea</i>	[14]	<i>R. fraxinea</i>
			<i>R. siliquosa</i>	[125]	<i>R. siliquosa</i>
126		Alanine	<i>R. celastri</i> (photobiont)	[4]	<i>R. celastri</i>
			<i>R. fraxinea</i>	[14]	<i>R. fraxinea</i>
			<i>R. siliquosa</i>	[125]	<i>R. siliquosa</i>
127		Serine	<i>R. sinensis</i>	[126]	<i>R. sinensis</i>
			<i>R. fraxinea</i>	[14]	<i>R. fraxinea</i>
			<i>R. siliquosa</i>	[125]	<i>R. siliquosa</i>
128		Proline	<i>R. fraxinea</i>	[14]	<i>R. fraxinea</i>
			<i>R. siliquosa</i>	[125]	<i>R. siliquosa</i>
			<i>R. siliquosa</i>	[125]	<i>R. siliquosa</i>
129		Arginine	<i>R. celastri</i> (photobiont)	[4]	<i>R. celastri</i>
			<i>R. siliquosa</i>	[125]	<i>R. siliquosa</i>
			<i>R. celastri</i> (photobiont)	[4]	<i>R. celastri</i>
130		Glycine	<i>R. siliquosa</i>	[125]	<i>R. celastri</i>
			<i>R. celastri</i> (photobiont)	[4]	<i>R. celastri</i>
			<i>R. celastri</i> (photobiont)	[4]	<i>R. celastri</i>
131		Lysine	<i>R. celastri</i> (photobiont)	[4]	<i>R. celastri</i>
			<i>R. siliquosa</i>	[125]	<i>R. celastri</i>
			<i>R. celastri</i> (photobiont)	[4]	<i>R. celastri</i>
132		Leucine	<i>R. celastri</i> (photobiont)	[4]	<i>R. celastri</i>
			<i>R. siliquosa</i>	[125]	<i>R. celastri</i>
			<i>R. celastri</i> (photobiont)	[4]	<i>R. celastri</i>
133		Threonine	<i>R. celastri</i> (photobiont)	[4]	<i>R. celastri</i>
			<i>R. siliquosa</i>	[125]	<i>R. celastri</i>
			<i>R. celastri</i> (photobiont)	[4]	<i>R. celastri</i>
134		Glucosamine	<i>R. siliquosa</i>	[125]	<i>R. celastri</i>
			<i>R. celastri</i> (photobiont)	[4]	<i>R. celastri</i>
			<i>R. celastri</i> (photobiont)	[4]	<i>R. celastri</i>
135		$\gamma$ -Aminobutyric acid	<i>R. fraxinea</i>	[14]	<i>R. celastri</i>
			<i>R. celastri</i> (photobiont)	[4]	<i>R. celastri</i>
136		Taurine	<i>R. crassa</i>	[127]	<i>R. celastri</i>

\* Updating scientific names validated by Index Fungorum, available at <http://www.indexfungorum.org/names/NAMES.asp> in May 2014.

**Table S10.** Other compounds reported in the *Ramalina* species of lichenized fungi (Fungi: Ascomycota).

No.	Class of Compounds	Compounds Name	Source ( <i>Ramalina</i> species)	References	Current Names of Species *
137	Hidrazide	Ramalin	<i>R. terebrata</i>	[83,85,128–130]	<i>R. terebrata</i>
138	Cyclic peptide	Stereocalpin A	<i>R. terebrata</i>	[131–133]	<i>R. terebrata</i>
139	Phenolics compounds	2,3-Dihydroxy-4-methoxy-6-pentyl-phenylmethyl ester	<i>R. farinacea</i>	[91]	<i>R. farinacea</i>
140		Divaric acid	<i>R. africana</i>	[24]	<i>R. africana</i>
141		Ethyl divaricatinate	<i>R. africana</i>	[24]	<i>R. africana</i>
142		2-Hydroxy-4-methoxy-6-propyl benzoic acid	<i>R. roesleri</i>	[78]	<i>R. roesleri</i>
143		2,4-Dihydroxy-3,6-dimethyl-methyl ester benzoic acid	<i>R. roesleri</i>	[78]	<i>R. roesleri</i>
144		Isorhizonic acid	<i>R. dilacerata</i>	[134]	<i>R. dilacerate</i>
145	Organics acids and derivatives	α-Crotonic acid	<i>R. reticulata</i>	[15]	<i>R. menziesii</i>
146		Abscisic acid	<i>R. farinacea</i>	[123]	<i>R. farinacea</i>
147		Ethyl caprilate	<i>R. fastigiata</i>	[135]	<i>R. fastigiata</i>
148		Ethyl palmitate	<i>R. fastigiata</i>	[135]	<i>R. fastigiata</i>
149		Ethyl stearate	<i>R. fastigiata</i>	[135]	<i>R. fastigiata</i>
150	Benzopyran	Divaricat acid	<i>R. hierrensis</i>	[68]	<i>R. hierrensis</i>
151	Anthraquinone	Parientin	<i>R. hierrensis</i>	[68]	<i>R. hierrensis</i>
152	Hydrocarbon	Aspicilin	<i>R. ecklonii</i>	[34]	<i>R. ecklonii</i>
153		Ethylene	<i>R. lacera</i>	[47]	<i>R. lacera</i>

\* Updating scientific names validated by Index Fungorum, available at <http://www.indexfungorum.org/names/Names.asp> in May 2014.

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