

## Supplementary

**Table S1.** Peak areas (from UV 250–380 nm chromatograms) of the different compounds separated from aqueous acetonetic extracts of Norway spruce cones. FRAP and TPC indicate the antioxidant capacity of the extracts. For the interpretation of the tags please refer to Table 1.

Tag	% Acetone										
	100	90	80	70	60	50	40	30	20	10	0
PBd1	5.1	6.3	9.4	17.4	21.0	23.6	21.2	39.1	46.2	40.1	21.3
(+)-Cat	1289.0	1672.0	2031.0	2120.0	3003.0	3210.0	3700.0	3521.0	4401.0	3893.0	2369.0
PBd2	5.2	20.5	54.5	98.5	108.7	230.9	287.2	358.4	395.3	388.8	265.0
PCt1	10.4	23.4	64.7	104.5	153.9	231.4	219.0	364.0	452.1	426.2	318.8
PBd3	3.2	12.1	19.7	30.9	58.2	70.0	177.0	196.2	218.0	253.2	165.0
(-)-Epi	1.3	4.1	16.6	45.0	66.2	73.4	83.5	118.8	105.0	115.1	106.0
Ui1	706.0	787.0	1550.0	1760.0	3286.0	2960.0	2400.0	3680.0	3670.0	4050.0	715.0
PtanHex	336.0	1060.0	1450.0	1970.0	2910.0	2740.0	2100.0	1930.0	2290.0	1940.0	42.0
Th	27.1	134.0	159.0	179.0	172.0	377.0	428.0	389.0	397.0	355.0	266.0
Ui2	142.0	316.5	389.7	446.7	589.5	983.2	872.1	749.6	651.1	595.0	129.0
Ui3	15.0	63.0	130.9	138.6	143.5	238.4	345.9	255.0	366.1	290.3	218.4
Ptan	10.0	34.0	37.6	51.7	100.8	172.8	163.4	142.6	131.8	110.3	11.7
Qh	63.2	75.7	123.9	118.8	201.9	298.0	268.0	356.0	339.0	291.5	187.3
Cou1	106.2	184.9	200.0	268.8	336.7	473.9	473.7	439.7	424.6	262.4	104.9
Kh	130.0	140.2	175.9	178.3	322.9	559.7	618.6	448.8	488.2	364.5	142.4
Ih	21.0	36.7	63.9	66.1	115.9	173.0	180.7	156.9	89.3	66.0	45.4
Ui4	127.3	110.7	140.4	181.6	196.1	389.6	345.8	276.4	268.0	188.4	37.5
Ui5	97.2	88.1	95.0	100.0	105.0	137.3	160.8	143.2	123.4	110.0	134.5
Cou2	84.4	163.6	336.0	357.9	648.7	480.7	497.6	394.3	330.8	161.2	79.7
Ui6	37.6	94.7	165.5	190.0	281.4	198.9	193.4	139.6	134.0	100.1	51.3
Cou3	62.1	82.5	119.6	226.9	234.9	199.0	186.2	174.2	133.0	46.0	9.6
Ui7	78.2	101.2	142.5	180.0	239.8	215.2	174.2	133.7	107.7	50.5	32.4
Cou4	21.4	165.8	227.8	378.6	610.0	494.8	390.6	375.4	318.0	87.5	43.9
Cou5	2983.0	3326.0	4230.0	4229.0	7780.0	5895.0	4736.0	4444.0	2419.0	935.5	38.6
Cou6	7491.0	8878.0	9124.0	9500.0	13370.0	10800.0	7940.0	7461.0	3726.0	1174.0	60.0
Cou7	6251.0	6183.0	7334.0	8720.0	10310.0	10030.0	9104.0	9190.0	8443.0	8021.0	6978.0
Fea	102.1	140.6	201.9	200.0	253.8	209.3	201.1	227.6	147.4	86.6	12.7
Ui8	162.8	170.1	433.3	434.0	434.4	387.8	363.9	289.4	284.1	172.5	109.0
Cou8	262.4	269.0	353.1	353.0	375.1	254.1	263.7	199.6	115.0	98.2	25.4
Ui9	150.0	166.0	245.2	224.3	275.3	323.6	220.1	164.9	116.9	47.4	59.6
FRAP (mg AAE/g dw.)	54.3	109.9	151.7	172.9	197.1	213.7	217.5	225.6	210.2	179.7	50.2
TPC (mg GAE/g dw)	26.6	44.0	51.7	61.7	67.1	53.5	64.1	59.3	60.9	48.1	18.3

**Table S2.** Results of the factor analysis involving the FRAP and TPC antioxidant capacity as well as peak areas of Norway spruce cone extracts. Factor loadings were calculated with the Varimax normalized method. Only the highest factor values ( $> 0.7$ ) were indicated. Cumulative total variance of the three factors was: 93.76%. For the interpretation of the tags please refer to Table 1.

	Factor 1	Factor 2	Factor 3
<b>Eigenvalue</b>	11.91	10.76	1.43
<b>Total variance (%)</b>	55.66	33.63	4.48
<b>Tag</b>			
FRAP	0.74		
TPC	0.88		
PBd1		0.98	
(+)-Cat		0.93	
PBd2		0.96	
PCt1		0.97	
PBd3		0.93	
(-)-Epi		0.92	
Ui1		0.84	
PtanHex	0.86		
Th		0.83	
Ui2			
Ui3		0.88	
Ptan			
Qh		0.90	
Cou1			
Kh			
Ih			
Ui4			
Ui5			0.80
Cou2	0.93		
Ui6	0.95		
Cou3	0.95		
Ui7	0.96		
Cou4	0.93		
Cou5	0.93		
Cou6	0.84		
Cou7	0.78		
Fea	0.95		
Ui9	0.91		
Cou8	0.76		
Ui10	0.84		

**Table S3.** Peak areas (from UV 250–380 nm chromatograms) of the different compounds separated from aqueous/acetonic extracts of eastern hemlock cones. FRAP and TPC indicate the antioxidant capacity of the extracts. For the interpretation of the tags please refer to Table 1.

Tag	% Acetone										
	100	90	80	70	60	50	40	30	20	10	0
PBd1	8.3	10.0	12.3	9.6	17.2	15.1	17.0	12.1	23.9	41.6	36.1
(+)-Cat	12.0	28.0	45.2	45.4	108.6	151.5	239.4	303.2	331.3	351.3	315.3
PBd2	30.5	79.0	91.2	104.7	175.5	335.6	405.3	905.2	975.7	994.9	972.2
Ui10	3.4	14.5	35.3	56.5	414.4	2472.0	3884.0	3725.0	3311.0	3852.0	3541.0
PCT1	7.0	24.2	42.3	52.6	69.3	144.7	282.0	884.2	940.8	965.3	817.2
Cha1	19370.0	24080.0	30820.0	37070.0	37470.0	51660.0	59180.0	57000.0	50100.0	54310.0	50880.0
Cha2	421.4	418.0	485.0	687.6	569.4	1058.0	818.6	563.2	437.8	438.2	357.0
PCT2	45.4	136.5	208.9	340.6	330.0	350.6	487.9	246.2	207.7	192.0	138.0
(-)-Epi	10.1	14.3	17.2	15.0	24.8	34.6	53.0	45.0	50.0	57.0	30.0
Ui11	88.6	116.3	104.6	140.5	112.2	213.3	344.3	360.5	385.1	339.3	240.0
Ui12	592.9	998.5	792.1	1500.0	1518.0	2165.0	1930.0	1993.0	1919.0	1970.0	2021.0
Th	84.8	208.8	211.4	319.9	328.4	357.4	404.0	609.4	510.9	430.2	413.2
Ui13	102.8	110.6	101.0	125.0	95.0	187.0	230.1	218.9	232.8	199.2	162.5
Ui14	191.0	199.0	197.7	210.0	200.0	221.5	227.9	251.6	215.3	189.6	143.5
Qh	190.8	327.8	372.6	365.0	555.8	565.7	682.2	747.2	569.1	532.4	372.4
Qp	20.0	36.0	37.0	26.0	35.0	58.0	85.0	87.0	75.9	38.0	25.0
Kr1	169.0	449.0	521.0	564.7	532.0	639.1	597.0	782.1	484.8	413.0	344.9
Kh	1723.0	2505.0	3395.0	3761.0	3603.0	4191.0	4212.0	4874.0	3249.0	3956.0	2108.0
Uh	130.0	139.1	143.4	242.1	356.7	397.9	453.4	489.7	385.7	347.2	200.7
Kp1	188.0	246.5	285.2	345.5	496.4	600.0	447.6	473.9	303.7	334.1	177.6
Kp2	60.0	108.9	135.1	150.0	189.6	200.2	167.2	187.8	191.8	127.2	65.9
Kp3	50.4	67.1	164.2	172.8	183.2	207.2	195.2	244.4	160.8	146.1	88.0
Kah	416.1	609.2	809.4	844.0	858.0	966.8	906.5	1071.0	607.0	760.6	433.7
Kr2	224.1	329.8	494.4	473.6	413.9	504.4	498.9	559.2	347.8	364.6	109.8
KCou1	9982.0	9436.0	9356.0	11020.0	9397.0	9511.0	8853.0	6075.0	1834.0	892.4	21.7
Cou7	5054.2	5306.9	5559.6	6317.8	7075.9	7328.6	7075.9	6570.5	6065.0	5812.3	5306.9
KCou2	935.5	974.6	908.7	1025.0	809.9	905.6	817.3	422.8	110.0	40.0	20.5
Ui15	234.4	243.6	179.9	226.9	203.3	213.0	242.9	209.6	204.7	267.5	167.5
Ui16	163.8	178.3	141.0	87.7	96.0	69.4	54.0	64.3	80.9	59.7	86.5
Ui17	265.9	220.0	254.2	249.6	214.9	286.6	252.0	271.0	291.2	362.4	145.0
Ui18	15500.0	15670.0	15470.0	15420.0	14980.0	14170.0	15060.0	15040.0	15160.0	15410.0	15170.0
Ui19	294.2	238.1	258.3	231.7	262.3	268.9	267.8	223.7	244.3	247.3	275.3
FRAP (mg AAE/g dw.)	196.52	296.45	331.18	340.35	356.24	367.00	467.42	383.13	353.11	237.72	89.01
TPC (mg GAE/g dw)	90.74	121.02	122.24	126.18	115.70	116.96	123.21	112.67	103.23	82.98	54.27

**Table S4.** Results of the factor analysis involving the FRAP and TPC antioxidant capacity as well as peak areas of eastern hemlock cone extracts. Factor loadings were calculated with the Varimax normalized method. Only the highest factor values (> 0.7) were indicated. Cumulative total variance of the four factors was: 90.9%. For the interpretation of the tags please refer to Table 1.

	Factor 1	Factor 2	Factor 3	Factor 4
<b>Eigenvalues</b>	16.78	9.93	2.49	1.71
<b>Total variance (%)</b>	49.34	29.19	7.31	5.04
<b>Tag</b>				
FRAP	0.90			
TPC	0.78			
PBd1		0.80		
(+)-Cat		1.00		
PBd2		0.99		
Ui10		0.94		
PCt1		0.96		
Cha1		0.84		
Cha2			0.72	
PCt2	0.72			
(-)-Epi		0.86		
Ui11		0.90		
Ui12		0.80		
Th		0.84		
Ui13		0.82		
Ui14	0.88			
Qh	0.75			
Qp	0.71			
Kr1	0.95			
Kh	0.89			
Uh				
Kp1	0.79			
Kp2	0.88			
Kp3	0.90			
Kah	0.93			
Kr2	0.94			
KCou1		-0.90		
Cou7	0.77			
Ui16		-0.93		
Ui17				0.91
Ui18		-0.73		
Ui19				0.79
Ui20			-0.76	
Ui21				