

Column	Discovery ZR-CARBON (150 x 4.6 mm)	
Mobile phase	Methanol	Water

t_M, min	1,62
Flow-rate, ml/min	1,00
V_M, ml	1,62
n	10000

% Methanol	t _R , min					
	1	2	3	4	5	6
50	15,322	21,727	13,422	9,447	26,300	4,438
60	8,573	13,207	8,076	5,744	13,605	3,231
70	5,417	7,871	5,327	3,886	7,653	2,601
80	2,909	3,772	3,199	2,275	3,302	1,991

% Methanol	V _R , min					
	1	2	3	4	5	6
0,50	15,322	21,727	13,422	9,447	26,300	4,438
0,60	8,573	13,207	8,076	5,744	13,605	3,231
0,70	5,417	7,871	5,327	3,886	7,653	2,601
0,80	2,909	3,772	3,199	2,275	3,302	1,991

x Methanol	k					
	1	2	3	4	5	6
0,50	8,458	12,412	7,285	4,831	15,235	1,740
0,60	4,292	7,152	3,985	2,546	7,398	0,994
0,70	2,344	3,859	2,288	1,399	3,724	0,606
0,80	0,796	1,328	0,975	0,404	1,038	0,229

x Methanol	log k					
	1	2	3	4	5	6
0,50	0,927	1,094	0,862	0,684	1,183	0,240
0,60	0,633	0,854	0,600	0,406	0,869	-0,002
0,70	0,370	0,586	0,360	0,146	0,571	-0,218
0,80	-0,099	0,123	-0,011	-0,393	0,016	-0,640

	a, m					
	1	2	3	4	5	6
a	2,630	2,731	2,313	2,480	3,128	1,702
m	3,342	3,180	2,862	3,492	3,798	2,857
R	0,991	0,987	0,995	0,983	0,988	0,987

7

8,309

5,534

4,141

4,882

7

8,309

5,534

4,141

4,882

7

4,129

2,416

1,556

2,014

7

0,616

0,383

0,192

0,304

7

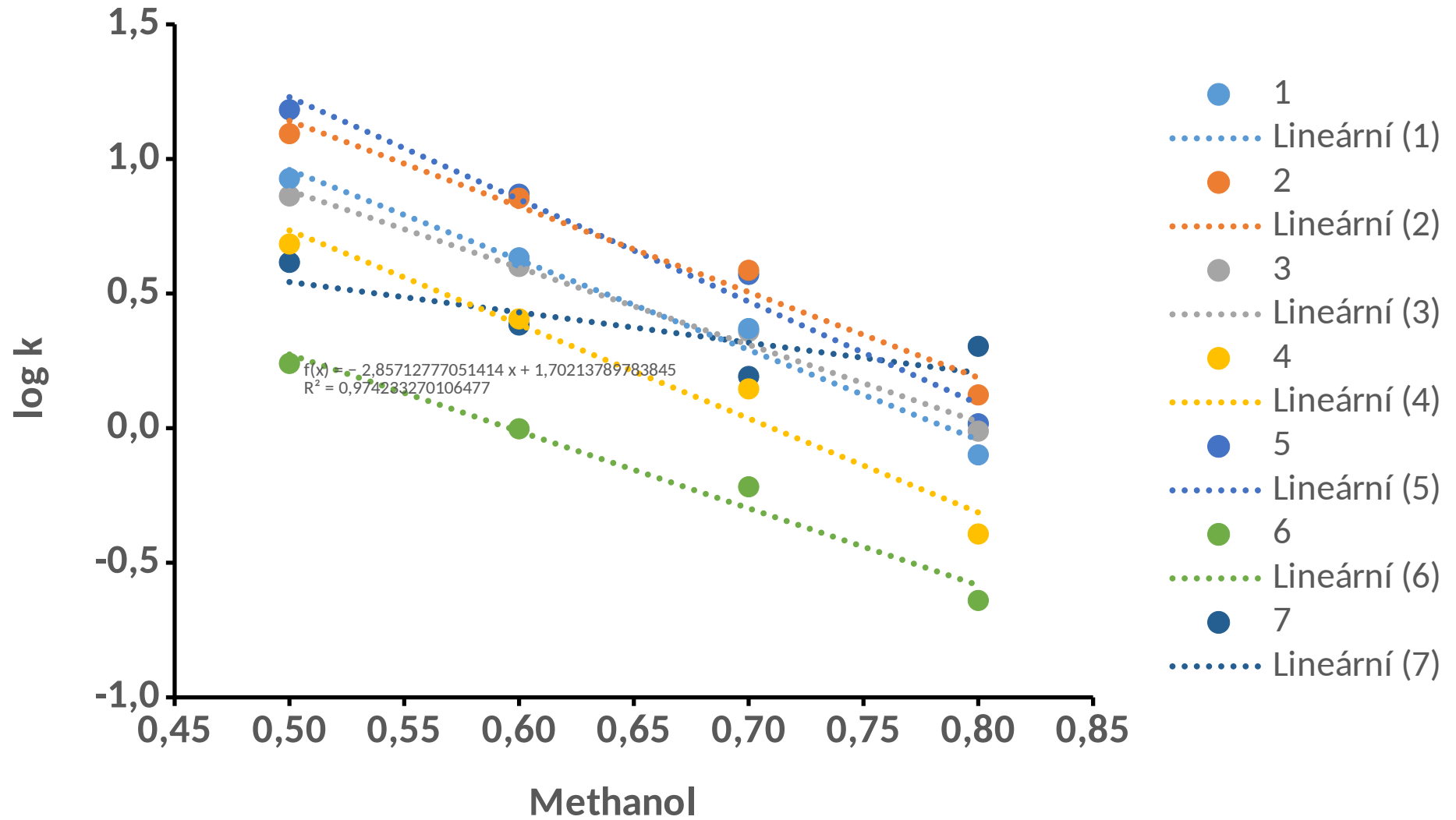
1,106

1,127

0,811

$$\log [k = a - m \cdot \varphi]$$

log k vs j



Column Discovery 26 CARBON (150 x 4.6 mm)

Mobile phase	Methanol	Water
t _r , min	1.62	
Flow rate, ml/min	1	
V _m , ml	1.62	
R	10000	

%	t _R , min						
	1	2	3	4	5	6	7
50	15.332	21.727	15.422	19.447	26.3	4.38	8.209
60	8.372	13.207	8.098	5.745	11.400	3.231	5.534
70	5.417	7.871	5.327	3.884	7.633	2.601	4.341
80	3.289	3.792	3.199	2.276	3.202	1.995	4.882

%	k						
	1	2	3	4	5	6	7
50	4.68	12.412	2.801	4.833	15.730	1.901	4.221
60	4.292	7.152	3.985	2.544	7.398	0.994	2.454
70	2.544	3.889	2.288	1.399	3.728	0.808	1.558
80	0.796	1.328	0.976	0.601	1.028	0.229	2.614

%	k						
	1	2	3	4	5	6	7
50	18.4	46.2	18.02	25.74	118.81	44.2	12.1
60	353.7	401.8	157.9	219.2	947.1	38.7	11.5
70	268.9	345.1	128.4	186.6	795.1	35.9	10.7
80	230.6	299.8	121.3	158.9	667.6	29.8	10.4

%	R						
	1	2	3	4	5	6	7
50	19.7	229.9	368.3	135.3	495.2	26.1	9.8
60	16.95	222.7	192.9	112.3	470.5	22.9	9.4
70	14.53	193.2	81.7	98.1	395.0	20.1	8.9
80	12.84	166.9	71.6	83.5	331.6	17.6	8.4

%	R						
	1	2	3	4	5	6	7
50	91.8	126.5	58.0	60.5	238.8	33.5	7.8
60	78.5	107.6	48.2	45.5	198.7	18.8	7.2
70	67.3	92.9	42.3	43.9	164.8	10.4	6.8
80	57.7	82.3	37.6	38.3	138.3	9.5	6.5

%	R						
	1	2	3	4	5	6	7
50	42.4	59.9	38.5	27.1	91.5	7.0	5.9
60	36.4	51.7	30.0	21.1	81.9	4.1	5.6
70	31.2	44.7	21.9	19.6	68.7	3.4	5.3
80	26.7	38.4	16.2	12.7	42.7	2.0	5.0

%	R						
	1	2	3	4	5	6	7
50	22.9	33.3	16.8	14.2	48.4	4.1	4.8
60	19.6	28.8	14.7	12.1	40.7	3.6	4.5
70	16.8	24.9	12.9	10.3	34.1	3.2	4.3
80	14.4	21.5	11.3	8.8	28.7	2.8	4.1

%	R						
	1	2	3	4	5	6	7
50	15.4	18.6	8.7	6.4	20.2	2.1	3.7
60	11.1	13.8	7.6	5.4	17.0	1.9	3.5
70	7.8	12.0	6.7	4.6	14.2	1.6	3.3
80	6.7	10.3	5.9	3.9	12.0	1.4	3.1

%	R						
	1	2	3	4	5	6	7
50	5.7	8.9	5.1	3.3	10.0	1.3	2.0
60	4.9	7.7	4.5	2.9	8.4	1.1	2.8
70	4.2	6.7	3.9	2.4	7.1	1.0	2.7
80	3.6	5.8	3.5	2.1	5.9	0.9	2.6

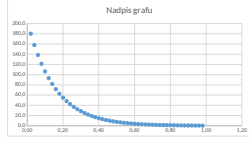
%	R						
	1	2	3	4	5	6	7
50	0.64	3.1	3.0	1.8	5.0	0.7	2.4
60	0.7	2.7	1.5	1.2	4.2	0.7	2.2
70	0.68	2.3	2.3	1.3	3.5	0.6	2.2
80	0.70	1.9	2.0	1.1	3.0	0.5	2.1

%	R						
	1	2	3	4	5	6	7
50	0.72	1.7	2.8	1.8	0.9	2.5	0.4
60	0.74	1.4	2.4	1.6	0.8	2.1	0.4
70	0.78	1.2	1.4	0.7	1.7	0.3	0.8
80	0.78	1.1	1.8	1.2	0.6	1.5	0.3

%	R						
	1	2	3	4	5	6	7
50	0.80	0.8	1.1	0.5	1.3	0.3	1.6
60	0.82	0.8	1.3	0.9	0.4	1.0	1.2
70	0.84	0.7	1.1	0.8	0.4	0.9	1.2
80	0.84	0.6	0.7	0.3	0.7	0.2	1.4

%	R						
	1	2	3	4	5	6	7
50	0.88	0.5	0.9	0.6	0.3	0.6	1.3
60	0.89	0.5	0.7	0.5	0.2	0.5	1.1
70	0.92	0.4	0.6	0.5	0.2	0.4	1.1
80	0.94	0.3	0.6	0.4	0.2	0.4	1.1

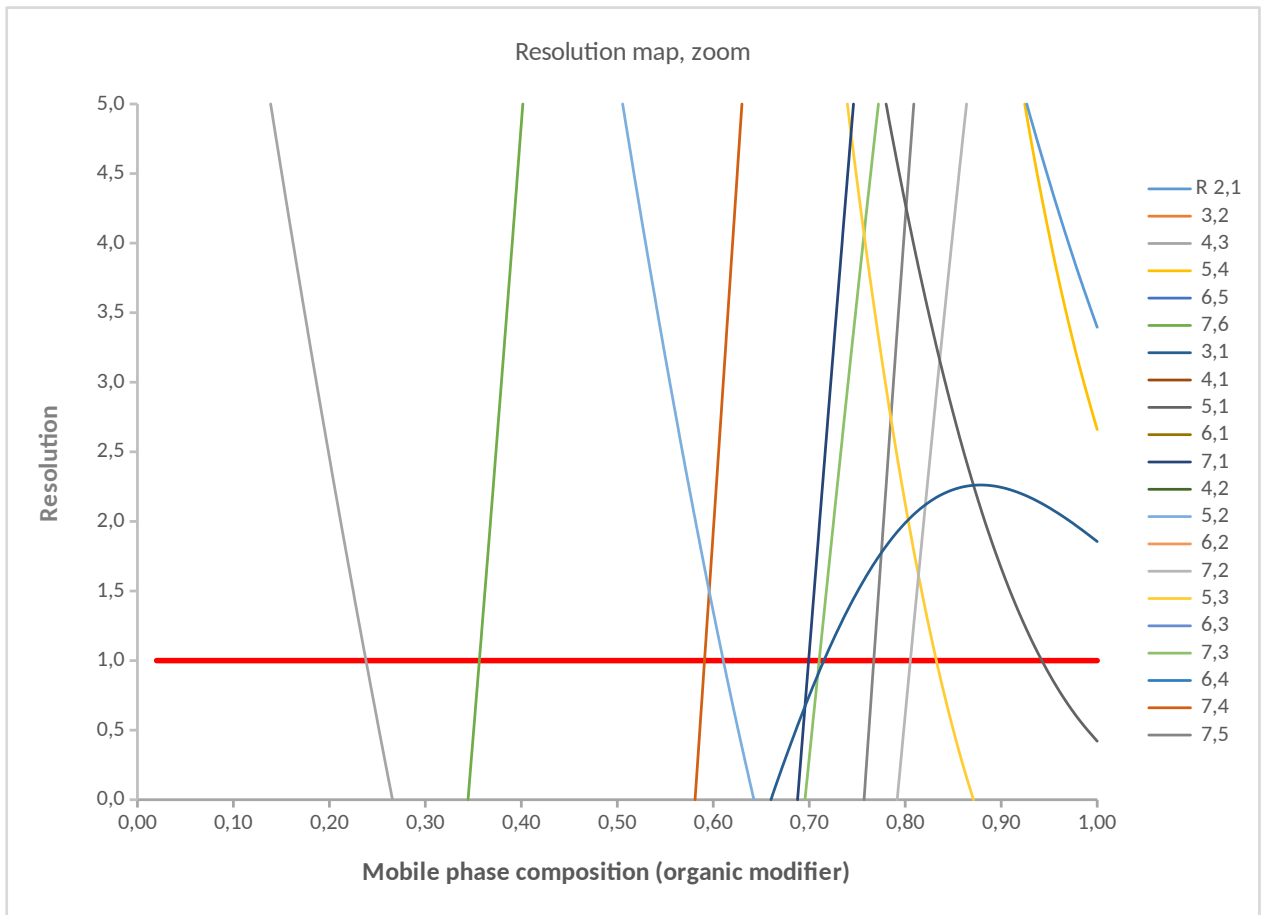
%	R						
	1	2	3	4	5	6	7
50	0.94	0.3	0.4	0.1	0.3	0.1	1.0
60	0.98	0.2	0.4	0.3	0.1	0.3	1.0



$$R = \frac{1}{k} \sqrt{\frac{n}{4} ((k-2-k_1)/k_1) (k_1/(1+k_1))}$$

NOT ALL POSSIBLE COMBINATIONS!!

%	k																										
	1.1	3.2	4.3	5.4	6.5	7.6	8.7	9.8	10.9	12.0	13.1	14.2	15.3	16.4	17.5	18.6	19.7	20.8	21.9	23.0	24.1	25.2	26.3	27.4	28.5		
50	4.8	15.3	20.7	26.2	31.7	37.2	42.7	48.2	53.7	59.2	64.7	70.2	75.7	81.2	86.7	92.2	97.7	103.2	108.7	114.2	119.7	125.2	130.7	136.2	141.7	147.2	
60	7.0	21.0	28.0	35.0	42.0	49.0	56.0	63.0	70.0	77.0	84.0	91.0	98.0	105.0	112.0	119.0	126.0	133.0	140.0	147.0	154.0	161.0	168.0	175.0	182.0	189.0	196.0
70	9.2	27.0	36.0	45.0	54.0	63.0	72.0	81.0	90.0	99.0	108.0	117.0	126.0	135.0	144.0	153.0	162.0	171.0	180.0	189.0	198.0	207.0	216.0	225.0	234.0	243.0	252.0
80	11.4	34.0	46.0	58.0	70.0	82.0	94.0	106.0	118.0	130.0	142.0	154.0	166.0	178.0	190.0	202.0	214.0	226.0	238.0	250.0	262.0	274.0	286.0	298.0	310.0	322.0	334.0



Separace

