Supplementary materials

Table S1

Experimental data for the derivatization procedure obtained from BBD (n = 3).

Run[a]	Independent variable				*Y* (peak area)	
	X_1 (amount of DBCEEC)	X_2 (temperature,°C)	X_3 (time,min)	X_4 (catalyst, %)	Neu5Ac	Neu5Gc
1	10	75	35	1.0	11.9	10.5
2	6	75	35	10.5	25.0	27.0
3	10	100	35	10.5	4.0	3.9
4	6	50	30	10.5	16.5	12.8
5	6	75	10	1.0	13.6	12.8
6	2	100	35	10.5	1.3	2.7
7	2	75	35	1.0	7.6	3.9
8	6	75	35	10.5	29.2	24.5
9	6	50	35	1.0	5.6	6.0
10	10	75	35	20.0	15.5	12.5
11	6	50	60	10.5	9.8	11.9
12	2	75	10	10.5	6.1	7.0
13	6	100	35	1.0	3.4	2.8
14	6	75	60	1.0	12.4	13.5
15	2	75	60	10.5	6.8	6.0
16	6	75	10	20.0	10.0	12.5
17	6	75	35	10.5	24.6	22.0
18	6	75	60	20.0	19.9	20.0
19	2	50	35	10.5	4.3	4.8
20	6	75	35	10.5	26.5	23.4
21	6	75	35	10.5	26.9	25.0
22	10	75	10	10.5	15.0	14.2
23	6	100	10	10.5	0.9	1.2
24	2	75	35	20.0	4.6	5.8
25	10	50	35	10.5	14.5	15.2
26	10	75	10	10.5	18.8	19.5
27	6	50	35	20.0	15.7	15.0
28	6	100	35	20.0	9.6	10.0
29	6	100	60	10.5	3.3	4.3

[a]The 17 runs from the BBD were given by the software Design-Expert 8.1.0 Trial.

Table S2

Experimental data for the hydrolysis condition obtained from BBD (n = 3).

Run[a]	Independent variable			*Y* (peak area)	
	X_1 (Temperature, °C)	X_2 (Time, min)	X_3 (acid concentration, mol/L)	Neu5Gc	Neu5Ac
1	75	35	2	16.0	31.4
2	100	60	2	1.0	2.9
3	50	60	2	5.2	13.1
4	75	60	3	7.0	11.0
5	75	35	2	13.0	27.8
6	100	10	2	1.7	6.1
7	50	10	2	5.8	10.5
8	75	10	3	5.5	11.0
9	100	35	1	1.8	18.5
10	50	35	3	5.0	10.0
11	100	35	3	0.99	3.9
12	75	10	1	5.5	19.5
13	75	35	2	14.0	32.0
14	75	35	2	15.0	29.6
15	50	35	1	2.9	18.9
16	75	35	2	13.7	30.1
17	75	60	1	6.1	23.8