

Separation of Oligosaccharides

(Extracted from the Diaion Manuals page 273)

(1) Separation of Oligo-saccharides

In the condensation polymerization of disaccharides formed mainly from different monosaccharides with proper polymerizing enzymes, monosaccharides generated by decomposition of raw materials, disaccharides, unreacted disaccharides, tri-saccharides as products, and tetra-saccharides are formulated. Polymer compounds are not produced by controlling the reaction rates. However, since this condensation polymerization is in equilibrium, the concentration, i.e. purity, of the product tri-saccharides is limited. Thus, size-exclusion chromatography is applied to increase the concentration as in the case of glucose/ oligo-saccharides separation. Table VIII-3-1 summarizes the results of oligo-saccharides by three-fraction separation.

[Table VIII-3-1] Separation of oligo-saccharides by three-fraction (71)

Separation material		DIAION® UBK530					
Separation method		Three fraction					
Flow rate		0.027 (1/h)					
Eluent volume		4.00 (volume ratio)					
Temperature		60.0 (°C)					
Component	Composition (%)	Mono-fraction		Di-fraction		Tri-fraction	
		Composition (%)	Recovery (%)	Composition (%)	Recovery (%)	Composition (%)	Recovery (%)
Mono-	26.51	1.35	93.76	2.68	4.89	1.36	1.35
Di-	46.03	13.93	0.00	81.98	86.07	24.39	13.93
Tri-	27.46	71.07	1.93	15.34	27.00	74.25	71.07
Total	100.00			100.00		100.00	
Solid		26.28	25.38		43.33		26.28
Solid conc.	53.38	11.36		19.78		8.07	