

Supplementary Table S2. Organic acids observed in the product mixture of *M. pyrifer*a alginate after incubation with AlyRm4.

Carboxylic acid	Rt ^a	Structure	MW (TMS)	MS ^b	EIMS fragments (<i>m/z</i>)
Butanedioic acid (Succinic acid)	<3	HOOC-CH ₂ -CH ₂ - COOH	262		247, 218, 203, 157, 172, 147, 133, 129, 116, 75, 73
Pentanedioic acid (Glutaric acid)	<3	HOOC-CH ₂ -CH ₂ -CH ₂ - COOH	276		261, 233, 204, 186, 158, 147, 133, 129, 116, 101, 97, 85, 75, 73, 55
Dihydroxy propionic acid (Glyceric acid)	3.2	CH ₂ OH-CHOH-COOH	322	(a)	307, 292, 217, 205, 189, 175, 147, 133, 117, 103, 73
Monohydroxy butanedioic acid (Malic acid) (monohydroxy Succinic acid)	4.8	HOOC-CH ₂ -CHOH- COOH	350	(b)	335, 319, 307, 265, 245, 233, 217, 189, 175, 147, 133, 117, 101, 73
Monohydroxy pentanedioic acid (monohydroxy Glutaric acid)	5.8	HOOC-CH ₂ -CH ₂ - CHOH-COOH	364	(c)	349, 321, 274, 259, 247, 231, 203, 157, 147, 129, 116, 73
Dihydroxy pentanedioic acid (dihydroxy Glutaric acid)	7.5	HOOC-CHOH-CH ₂ - CHOH-COOH	452	(d)	437, 347, 335, 319, 305, 292, 257, 245, 233, 220, 189, 147, 73
Trihydroxy pentanedioic acid (trihydroxy Glutaric acid)	9.1	HOOC-CHOH-CHOH- CHOH-COOH	540		525, 435, 423, 407, 361, 333, 321, 292, 277, 221, 189, 147, 73
Trihydroxy hexanedioic acid	9.9	HOOC-CHOH-CHOH- CHOH-CH ₂ -COOH	554		539, 449, 421, 407, 347, 335, 305, 292, 245, 233, 217, 189, 147, 73

^a Rt is GLC retention time (min) on EC-1 (140-250 °C at 8 °C/min). ^b (a) – (d) refer to the EI mass spectra in Supplementary Figure S10.