Supplemental information for

Performance and biocompatibility of OSTEMER 322 in cell-based microfluidic applications

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Results

Tab. S1: The elemental composition determined through the analysis of X-ray photoelectron spectroscopy (XPS) spectra. The data are presented as mean ± SD (n = 3). The samples marked with an asterisk "*" have undergone plasma treatment, while the samples marked with a hashtag "#" means oste322 inserts prepared from PDMS mould. Elements with "n.d." were not detected.

	C [at. %]	O [at. %]	S [at. %]	N [at. %]	F [at. %]	Si [at. %]	Na [at. %]	Cl [at. %]
Sample	**C 1s**	**O 1s**	**S 2p**	**N 1s**	**F 1s**	**Si 2p**	**Na 1s**	**Cl 2p**
Oste322	66.5 ± 0.1	21.5 ± 0.3	7.1 ± 0.1	4.9 ± 0.3	n.d.	n.d.	n.d.	n.d.
Oste322*	56.8 ± 0.8	29.0 ± 0.4	7.5 ± 0.3	6.6 ± 0.5	n.d.	n.d.	n.d.	n.d.
Oste322#	64.1 ± 5.7	22.5 ± 2.5	3.2 ± 0.7	2.7 ± 0.3	n.d.	7.6 ± 2.6	n.d.	n.d.
Oste322#*	44.3 ± 2.9	38.2 ± 2.7	4.2 ± 0.5	3.9 ± 0.7	n.d.	9.4 ± 1.1	n.d.	n.d.
Fluo-ST2	35.5 ± 6.6	17.3 ± 0.7	0.3 ± 0.5	1.3 ± 0.2	43.7 ± 7.4	1.8 ± 0.5	n.d.	n.d.
Fluo-ST2*	32.3 ± 1.2	17.5 ± 0.7	n.d.	1.4 ± 0.2	46.9 ± 1.7	2.0 ± 0.3	n.d.	n.d.
Collagen I	59.7 ± 2.1	22.8 ± 0.7	2.9 ± 0.3	6.8 ± 2.0	n.d.	5.6 ± 2.6	1.0 ± 1.0	1.1 ± 1.0
Collagen I*	59.7 ± 4.8	25.3 ± 1.6	3.6 ± 0.9	6.3 ± 0.6	n.d.	2.4 ± 1.9	1.7 ± 1.5	1.1 ± 1.0
Collagen II	60.4 ± 4.6	21.3 ± 1.2	1.4 ± 0.1	10.5 ± 0.8	n.d.	2.2 ± 1.0	2.2 ± 1.9	1.9 ± 2.0
Collagen II*	61.2 ± 5.0	21.5 ± 3.5	1.0 ± 0.3	10.7 ± 1.4	n.d.	2.4 ± 0.8	1.7 ± 0.8	1.5 ± 1.3
Collagen IV	64.2 ± 0.4	22.0 ± 1.2	3.3 ± 0.6	6.8 ± 1.9	n.d.	2.5 ± 0.3	0.5 ± 0.9	0.7 ± 1.1
Collagen IV*	54.9 ± 7.8	28.0 ± 4.2	3.1 ± 0.5	5.0 ± 0.5	n.d.	5.1 ± 0.6	2.6 ± 2.3	1.3 ± 2.3
Elastin	65.8 ± 1.4	19.6 ± 0.9	2.8 ± 0.4	8.1 ± 1.6	n.d.	2.9 ± 2.1	0.3 ± 0.6	0.4 ± 0.7
Elastin*	59.5 ± 5.9	23.2 ± 3.5	3.3 ± 0.5	8.2 ± 1.4	n.d.	3.6 ± 2.2	1.2 ± 1.3	1.0 ± 1.8
Fibronectin	60.4 ± 2.7	21.2 ± 0.9	3.0 ± 0.9	6.9 ± 0.7	n.d.	4.0 ± 2.3	2.4 ± 0.9	2.0 ± 2.5
Fibronectin*	53.5 ± 4.1	26.7 ± 2.4	3.5 ± 1.6	6.9 ± 1.3	n.d.	3.4 ± 2.3	4.0 ± 0.9	2.1 ± 2.2
Laminin	63.1 ± 2.6	21.8 ± 1.5	4.0 ± 0.1	4.7 ± 1.0	n.d.	5.2 ± 2.3	0.9 ± 0.9	0.3 ± 0.6
Laminin*	60.8 ± 3.7	24.6 ± 2.9	3.1 ± 0.2	3.2 ± 0.3	n.d.	5.5 ± 1.5	1.1 ± 1.2	1.6 ± 1.8
Poly-L-Lysine	62.4 ± 3.2	22.1 ± 1.1	4.6 ± 1.0	4.6 ± 0.8	n.d.	5.1 ± 2.5	0.6 ± 1.0	0.6 ± 1.0
Poly-L-Lysine*	56.6 ± 6.8	24.6 ± 0.9	3.4 ± 0.8	5.6 ± 0.9	n.d.	3.6 ± 1.9	2.9 ± 2.8	3.3 ± 3.2

Tab. S2: Probable design (from simulated spectra) of contaminating analytes found in the ethanolic leachate.

Monoisotopic ion mass (singly charged)	**Ion type**	**Formula for M**	**Compound species**	**References**
353.27	$[AB_3+H]^+$	$[C_{15}H_{24}O][C_2H_4O]n$	Triton, 101 detergent	[1]
354.06	$[M+H-CH_4]^+$	$[C_2H_6SiO]_5$	Polysiloxane (neutral methane loss from *m/z* 371)	[2]

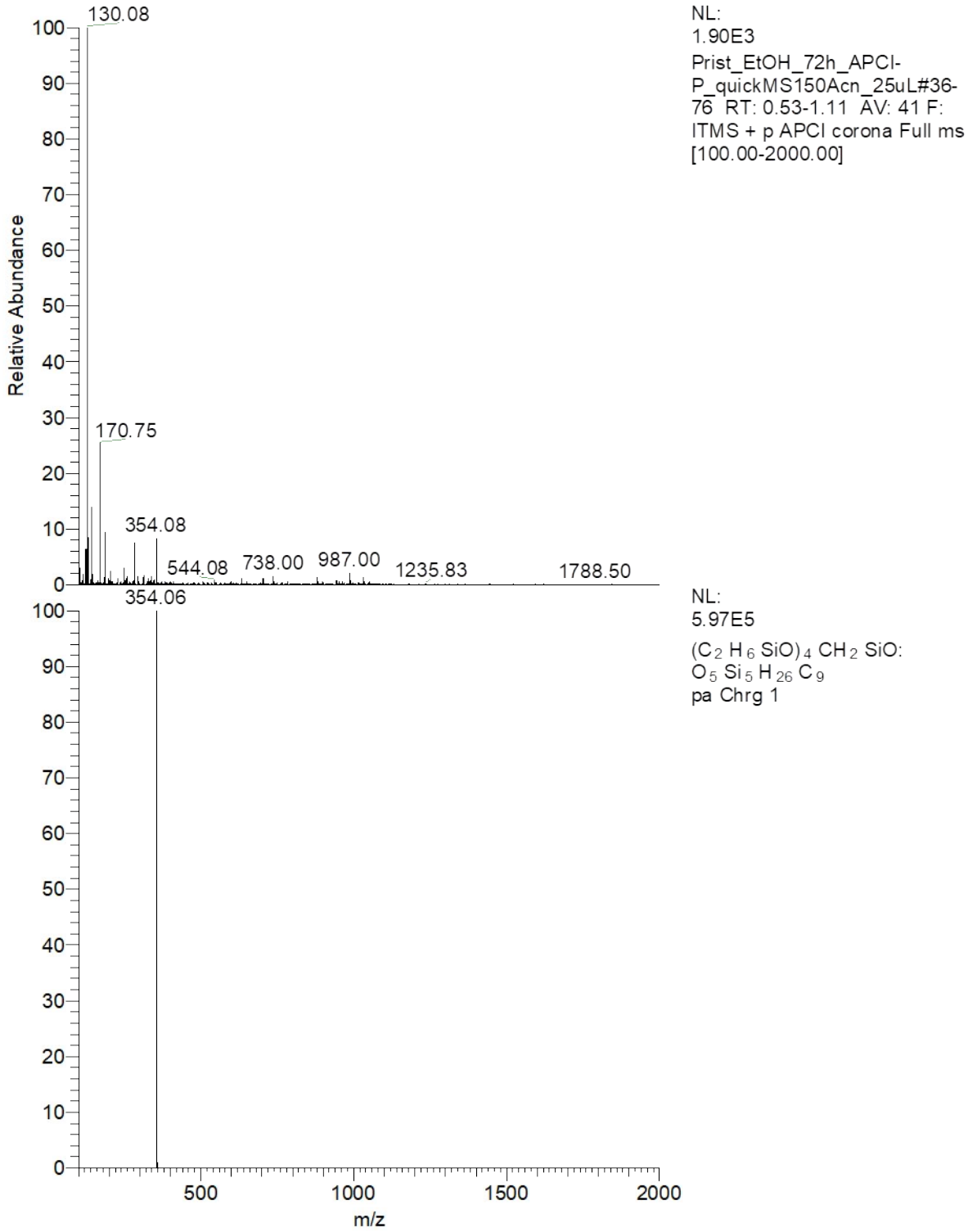

Fig. S1: Spectra of pristine oste322 insert incubated in ethanol for 72 hours. (Upper graph) MS spectrum measured in APCI-Positive mode. (Bottom graph) simulated spectrum of the probable leached material (Polysiloxane).

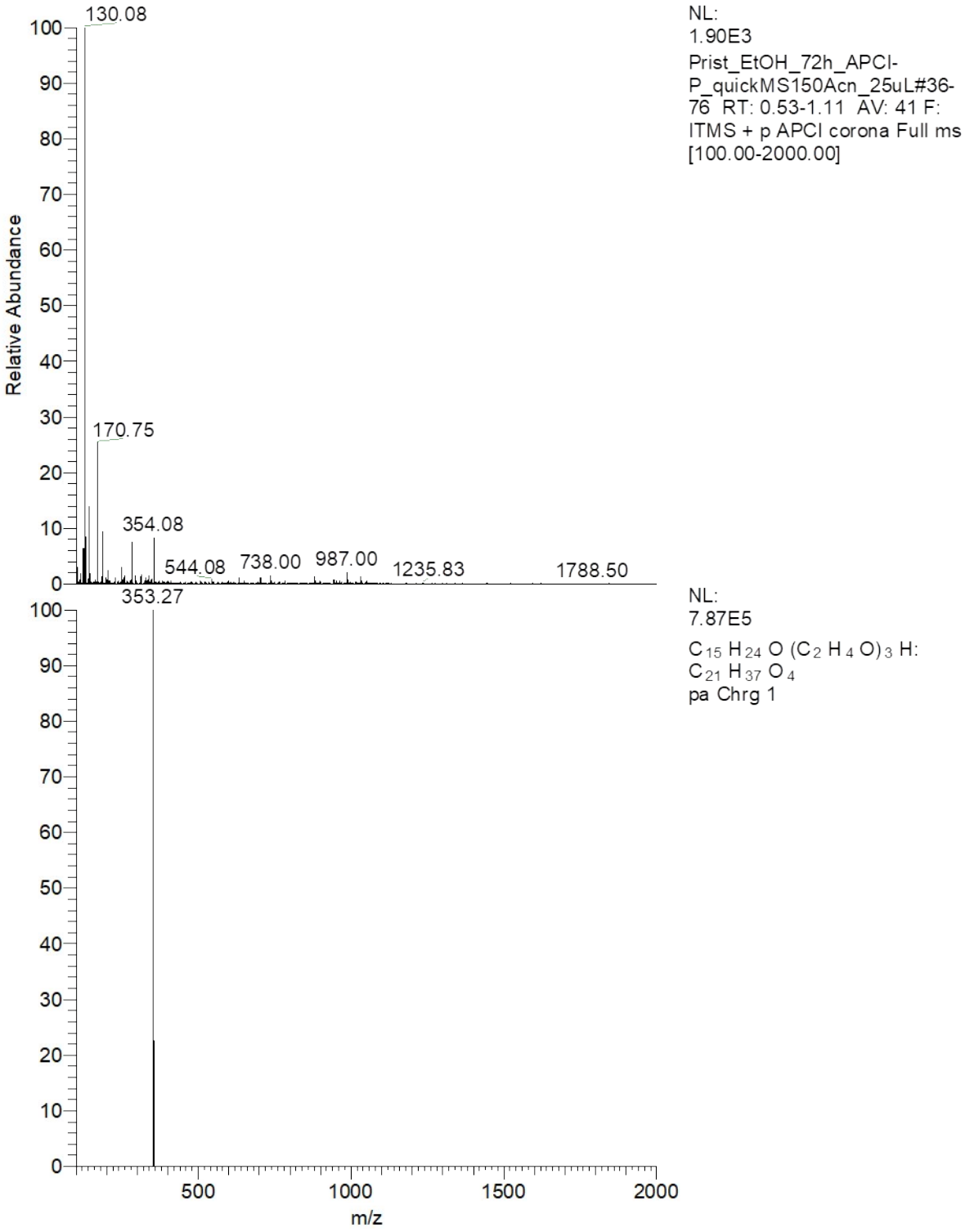

Fig. S2: Spectra of pristine oste322 insert incubated in ethanol for 72 hours. (Upper graph) MS spectrum measured in APCI-Positive mode. (Bottom graph) simulated spectrum of the probable leached material (Triton 101).

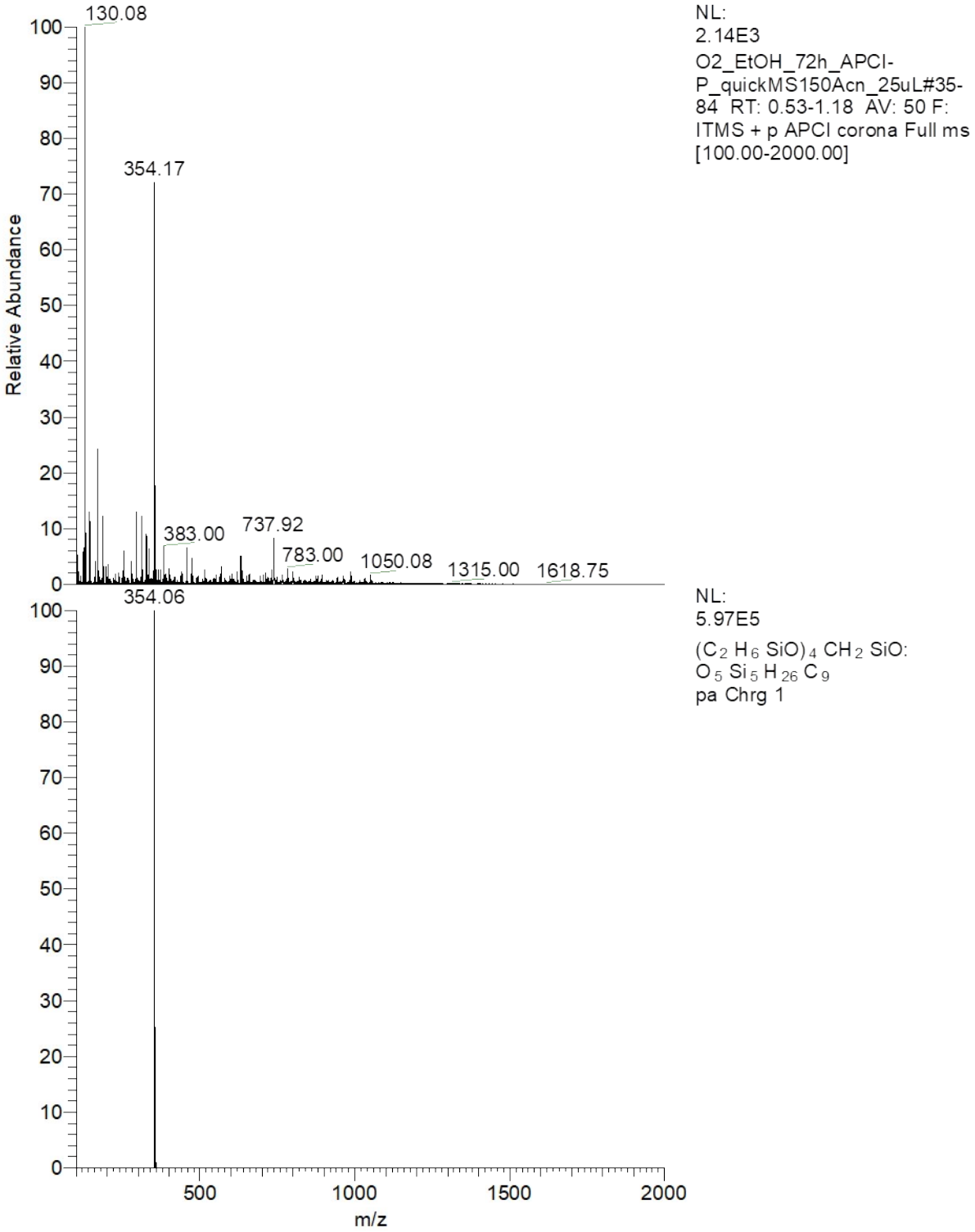

Fig. S3: Spectra of oxygen plasma treated oste322 insert incubated in ethanol for 72 hours. (Upper graph) MS spectrum measured in APCI-Positive mode. (Bottom graph) simulated spectrum of the probable leached material (Polysiloxane).

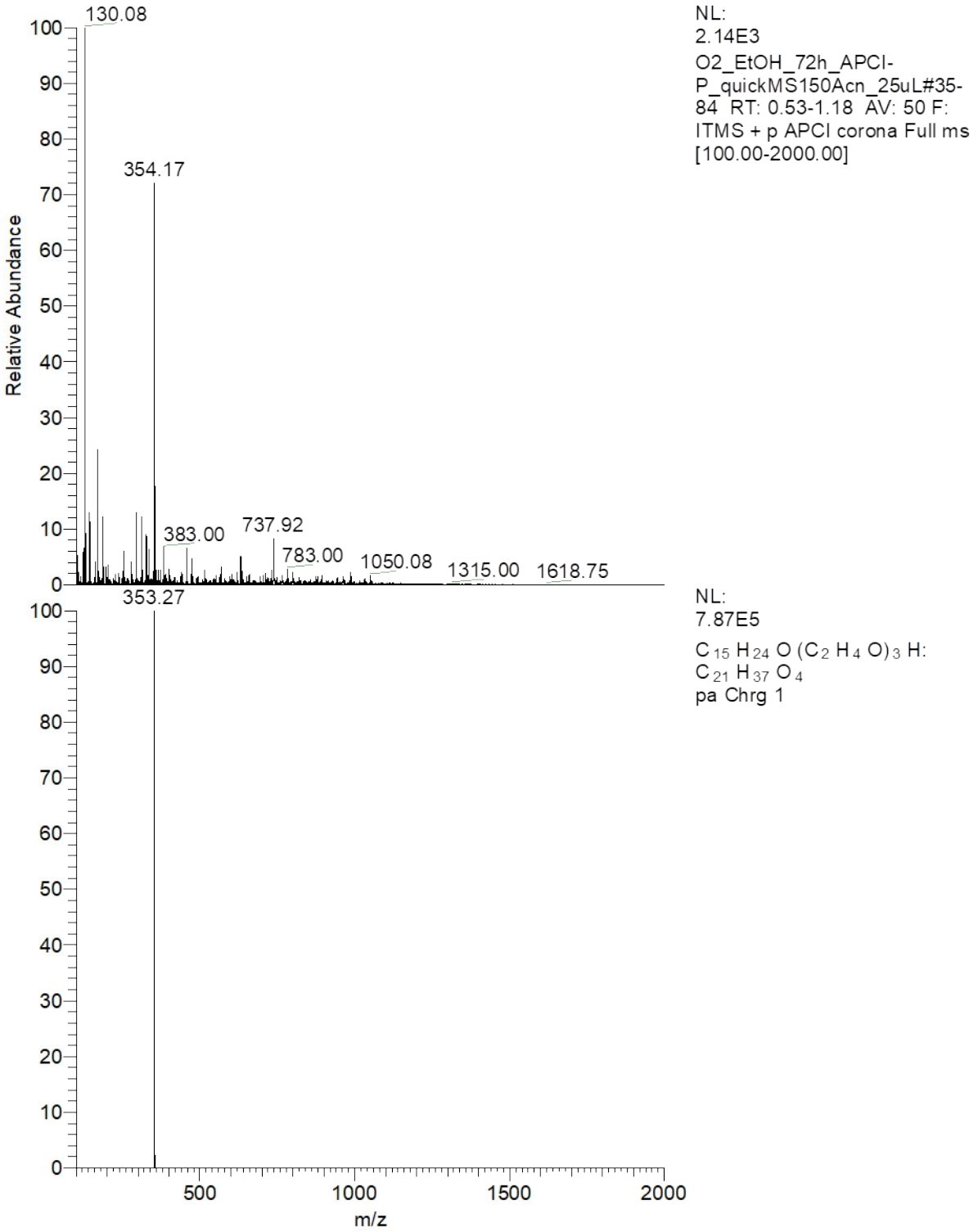

Fig. S4: Spectra of oxygen plasma treated oste322 insert incubated in ethanol for 72 hours. (Upper graph) MS spectrum measured in APCI-Positive mode. (Bottom graph) simulated spectrum of the probable leached material (Triton 101).

References

1 B. O. Keller, J. Sui, A. B. Young and R. M. Whittal, *Analytica Chimica Acta*, 2008, **627**, 71–81.
2 A. Schlosser and R. Volkmer-Engert, *J. Mass Spectrom.*, 2003, **38**, 523–525.