


## SUPPLEMENTARY MATERIAL

### **Improvement of an analytical method based on HPLC with refractive index detection for the analysis of glycerol oxidation products**

**Cristian J. Giertyas<sup>a</sup>, Débora S. da Silva<sup>a</sup>, Camila L. F. da Silva<sup>b</sup>, Mario R. Meneghetti<sup>a</sup>, Simoni M. Plentz Meneghetti<sup>a</sup>, Rusiene M. de Almeida<sup>a</sup> and Janaína H. Bortoluzzi<sup>a,\*</sup>** 

<sup>a</sup>Instituto de Química e Biotecnologia, Universidade Federal de Alagoas, 57072-970 Maceió – AL, Brasil

<sup>b</sup>Secretaria Estadual de Educação do Estado do Paraná e Serviço Social do Comércio, 80240-900 Curitiba – PR, Brasil

\*e-mail: janaina.bortoluzzi@iqb.ufal.br

**Table 1S.** Data obtained for the evaluation of the selectivity through the analytical curves in the absence and presence of the matrix

Compound		Absence of matrix			Presence of matrix			F <sup>c</sup> calculated
		Linear Regression Equations	s <sup>a</sup>	r <sup>b</sup>	Linear Regression Equations	s <sup>a</sup>	r <sup>b</sup>	
Oxalic acid	Area	y= -1950.21+119.9695x	2.8898	0.9988	y= -3339.66+143.2038x	2.9846	0.9978	1.07
	Height	y= -19.6988+8.10726x	0.1740	0.9991	y= -350.577+8.17585x	0.3790	0.9894	4.74
Tartronic acid	Area	y= -79.869+76.953x	1.3124	0.9994	y= -2277.429+75.187x	2.8546	0.9971	4.73
	Height	y=28.272+5.3947x	0.1131	0.9991	y= -169.8724+5.1701	0.1743	0.9977	2.38
Glyceraldehyde	Area	y= 4030.799+370.3537x	9.7182	0.9986	y= 5201.502+377.3253x	9.5133	0.9987	1.04
	Height	y= 209.1016+18.9097x	0.5128	0.9985	y=200.5275+18.52327x	0.3578	0.9993	2.05
Glycolic acid	Area	y= -166.066+196.6105x	3.8877	0.9992	y= -2756.971+234.0531x	6.1691	0.9986	2.52
	Height	y= 3.11109+10.5061x	0.2039	0.9993	y= -88.083+11.74928x	0.1080	0.9998	3.56
Lactic acid	Area	y= -370.455+181.2158x	3.1744	0.9994	y= 592.665+278.9589x	7.0127	0.9991	4.88
	Height	y= -12.6172+10.22167x	0.1755	0.9994	y= 18.12312+14.38653x	0.3536	0.9991	4.06
Glycerol	Area	y= -616.807+315.5698x	6.0510	0.9995	y= -1553.89+236.5751x	7.8059	0.9984	1.66
	Height	y=-7.20599+16.4909x	0.2928	0.9994	y= -92.5633+12.08267x	0.2450	0.9992	1.43
Formic acid	Area	y= -278.591+132.1032x	1.4823	0.9998	y=-1501.58+156.5527x	2.6654	0.9994	3.23
	Height	y= 5.21406+6.38159x	0.0776	0.9997	y= -49.7984+6.95323x	0.0986	0.9996	1.61
Acetic acid	Area	y= -541.47+174.317x	1.6632	0.9998	y= -866.941+181.0304x	2.7546	0.9995	2.74
	Height	y= 0.70147+7.51591x	0.0806	0.9998	y= -17.6694+7.40798x	0.0469	0.9999	2.95

<sup>a</sup> s = standard deviation of the slope of the analytical curve, <sup>b</sup> r = correlation coefficient, <sup>c</sup> F = ratio between the highest and lowest variance of slope curves (F test).

**Table 2S.** Robustness of the method obtained by solving the compounds

Compound	Flow		pH mobile		Temperature		Temperature	
	(mL min <sup>-1</sup> )		phase		column (°C)		detector (°C)	
condition	0.32	0.38	2.14	2.34	35.0	45.0	30.0	40.0
Oxalic acid	--	--	--	--	--	--	--	--
Tartronic acid	8.27	8.03	8.08	8.30	7.24	7.31	7.30	5.59
Glyceraldehyde	15.04	14.88	13.26	14.58	14.44	14.59	14.66	15.91
Glycolic acid	3.51	3.53	4.03	3.16	3.30	3.31	3.29	2.99
Lactic acid	1.44	1.45	1.40	1.40	1.35	1.54	1.41	1.41
Glycerol	1.37	1.37	1.46	1.97	1.21	1.44	1.44	1.45
Formic acid	1.35	1.36	1.25	0.94	1.77	1.23	1.25	1.25
Acetic acid	3.45	3.51	3.40	3.51	3.61	3.62	3.63	4.79

