

**Table S1.** Photon rate (cps) relative to the elements detected by Energy Dispersive X-ray Fluorescence (ED-XRF) spectroscopy in *The Mystic Marriage of Saint Catherine* painting.

bdl = element's concentration below the detection limit.

element	line	S1			S2			S3			S4			S5			S6		
Al	K	0.22	±	0.07	0.3	±	0.1	0.3	±	0.1	0.24	±	0.07	bdl			0.3	±	0.1
Si	K	0.7	±	0.1	1.2	±	0.1	bdl			0.3	±	0.1	0.18	±	0.06	bdl		
P	K	0.4	±	0.1	0.6	±	0.1	0.24	±	0.07	0.8	±	0.1	0.3	±	0.1	0.5	±	0.1
S	K	8.6	±	0.3	7.2	±	0.2	4.0	±	0.2	9.7	±	0.3	2.8	±	0.2	6.7	±	0.2
Cl	K	8.6	±	0.2	15.9	±	0.3	15.5	±	0.3	11.2	±	0.2	2.3	±	0.1	6.0	±	0.2
K	K	4.2	±	0.2	11.6	±	0.2	4.9	±	0.2	2.0	±	0.1	0.25	±	0.07	bdl		
Ca	K	20.6	±	0.4	31.0	±	0.5	17.6	±	0.4	16.8	±	0.4	1.3	±	0.1	2.4	±	0.2
Ti	K	bdl			1.5	±	0.1	0.5	±	0.1	0.6	±	0.1	bdl			0.3	±	0.1
Cr	K	bdl			0.6	±	0.1	0.7	±	0.1	0.7	±	0.1	bdl			0.9	±	0.1
Mn	K	bdl			1.8	±	0.1	1.3	±	0.1	bdl			0.22	±	0.06	bdl		
Fe	K	3.9	±	0.2	30.5	±	0.4	11.9	±	0.3	63.8	±	0.5	1.9	±	0.1	2.8	±	0.1
Co	K	bdl			2.4	±	0.2	1.0	±	0.1	bdl			bdl			0.5	±	0.1
Ni	K	0.6	±	0.1	0.6	±	0.1	1.2	±	0.1	0.8	±	0.1	bdl			bdl		
Cu	K	1.7	±	0.1	2.4	±	0.1	1244.7	±	2.1	12.7	±	0.3	0.21	±	0.07	1.0	±	0.1
Zn	K	0.4	±	0.1	3.5	±	0.2	6.7	±	0.2	0.9	±	0.1	bdl			0.3	±	0.1
Sr	K	5.1	±	0.2	8.2	±	0.2	5.4	±	0.2	5.6	±	0.2	bdl			0.9	±	0.1
Sn	K	bdl			bdl			2.2	±	0.2	bdl			bdl			bdl		
Sn	L	bdl			bdl			3.8	±	0.3	bdl			bdl			bdl		
Ba	L	1.0	±	0.2	1.7	±	0.2	1.1	±	0.2	1.2	±	0.2	bdl			0.5	±	0.2
Au	L	bdl			47.7	±	0.5	bdl			bdl			bdl			bdl		
Hg	L	bdl			3.1	±	0.2	bdl			3.8	±	0.2	18.7	±	0.3	22.2	±	0.3
Pb	L	214.6	±	0.9	135.9	±	0.8	72.5	±	0.6	647.8	±	1.6	311.1	±	1.1	606.4	±	1.5
Pb	M	5.3	±	0.3	2.0	±	0.3	2.4	±	0.3	16.4	±	0.4	5.8	±	0.3	15.1	±	0.4

element	line	S7			S8			S9			S10			S11		
Al	K	0.24	±	0.06	0.22	±	0.06	0.3	±	0.1	0.4	±	0.1	bdl		
Si	K	0.21	±	0.06	0.21	±	0.06	0.21	±	0.06	0.3	±	0.1	0.7	±	0.1
P	K	0.5	±	0.1	0.5	±	0.1	0.7	±	0.1	0.8	±	0.1	0.7	±	0.1
S	K	3.0	±	0.2	5.4	±	0.2	11.4	±	0.3	6.7	±	0.2	8.7	±	0.3
Cl	K	3.4	±	0.1	9.8	±	0.2	9.9	±	0.2	7.7	±	0.2	12.1	±	0.2
K	K	0.3	±	0.1	1.7	±	0.1	3.7	±	0.2	1.2	±	0.1	5.5	±	0.2
Ca	K	1.0	±	0.1	12.7	±	0.3	39.8	±	0.5	12.4	±	0.3	75.6	±	0.7
Ti	K	bdl			2.2	±	0.1	1.3	±	0.1	0.7	±	0.1	2.1	±	0.2
Cr	K	bdl			0.3	±	0.1	0.7	±	0.1	0.6	±	0.1	0.4	±	0.1
Mn	K	0.24	±	0.06	0.24	±	0.08	0.3	±	0.1	bdl			1.0	±	0.1
Fe	K	1.2	±	0.1	4.7	±	0.2	7.9	±	0.2	45.0	±	0.4	130.7	±	0.7
Co	K	bdl			0.3	±	0.1	1.0	±	0.1	bdl			bdl		
Ni	K	0.6	±	0.1	bdl			0.9	±	0.1	0.9	±	0.1	0.6	±	0.1
Cu	K	0.6	±	0.1	2.4	±	0.1	2.3	±	0.1	1.8	±	0.1	2.3	±	0.1
Zn	K	0.3	±	0.1	0.9	±	0.1	1.4	±	0.1	0.8	±	0.1	1.2	±	0.1
Sr	K	0.4	±	0.1	2.2	±	0.1	2.8	±	0.1	2.6	±	0.1	10.2	±	0.2
Sn	K	bdl			bdl			bdl			bdl			bdl		
Sn	L	bdl			bdl			bdl			bdl			bdl		
Ba	L	0.6	±	0.1	bdl			0.8	±	0.2	bdl			1.0	±	0.2
Au	L	bdl			bdl			1.9	±	0.2	bdl			bdl		
Hg	L	12.0	±	0.3	bdl			8.3	±	0.3	8.0	±	0.2	41.4	±	0.4
Pb	L	300.1	±	1.1	368.5	±	1.2	534.1	±	1.4	519.4	±	1.4	100.4	±	0.7
Pb	M	7.4	±	0.3	9.2	±	0.3	8.6	±	0.4	15.6	±	0.4	6.6	±	0.4

**Table S2.** Photon rate (cps) relative to the elements detected by Energy Dispersive X-ray Fluorescence (ED-XRF) spectroscopy in *The Madonna of the Rose Garden* painting.

bdl = element's concentration below the detection limit.

element	line	V1	V2	V3	V4	V5
Al	K	bdl	bdl	0.34 ± 0.05	0.20 ± 0.04	bdl
Si	K	bdl	0.20 ± 0.05	bdl	bdl	bdl
P	K	bdl	bdl	bdl	0.15 ± 0.05	0.23 ± 0.05
S	K	0.8 ± 0.1	0.4 ± 0.1	0.5 ± 0.1	0.6 ± 0.1	0.4 ± 0.1
Cl	K	bdl	bdl	0.22 ± 0.07	bdl	bdl
K	K	2.0 ± 0.1	1.0 ± 0.1	1.9 ± 0.1	2.2 ± 0.1	0.7 ± 0.1
Ca	K	13.7 ± 0.3	3.1 ± 0.2	6.1 ± 0.2	17.3 ± 0.4	5.8 ± 0.2
Ti	K	1.3 ± 0.1	bdl	0.3 ± 0.1	0.6 ± 0.1	bdl
Cr	K	bdl	bdl	bdl	12.3 ± 0.2	0.19 ± 0.05
Mn	K	0.20 ± 0.06	bdl	0.8 ± 0.1	bdl	bdl
Fe	K	2.9 ± 0.1	0.8 ± 0.1	30.5 ± 0.4	4.5 ± 0.2	1.6 ± 0.1
Co	K	0.8 ± 0.1	bdl	0.7 ± 0.1	13.3 ± 0.2	bdl
Cu	K	6.4 ± 0.2	5.3 ± 0.2	577.4 ± 1.4	27.0 ± 0.3	71.0 ± 0.5
Zn	K	0.7 ± 0.1	0.18 ± 0.05	2.1 ± 0.1	0.5 ± 0.1	0.4 ± 0.1
As	K	bdl	bdl	3.0 ± 0.5	bdl	bdl
Sr	K	2.6 ± 0.1	0.6 ± 0.1	0.7 ± 0.1	0.7 ± 0.1	0.5 ± 0.1
Sn	K	bdl	bdl	bdl	bdl	bdl
Sn	L	bdl	bdl	bdl	bdl	bdl
Sb	K	bdl	bdl	bdl	bdl	bdl
Ba	Ka	bdl	bdl	bdl	bdl	bdl
Ba	L	bdl	0.4 ± 0.1	0.9 ± 0.2	0.63 ± 0.18	0.5 ± 0.1
Hg	L	0.3 ± 0.1	0.4 ± 0.1	1.9 ± 0.1	1.4 ± 0.2	bdl
Pb	L	118.5 ± 0.7	85.0 ± 0.6	18.1 ± 0.3	707.4 ± 1.6	bdl
Pb	M	1.6 ± 0.2	0.9 ± 0.1	bdl	2.2 ± 0.2	bdl

element	line	V6		V8		V10	V11		V12
Al	K	bdl		0.14 ± 0.04		bdl	bdl		bdl
Si	K	bdl		bdl		bdl	bdl		bdl
P	K	bdl		0.18 ± 0.04		bdl	bdl		bdl
S	K	0.7	± 0.1	1.8	± 0.1	bdl	0.4	± 0.1	bdl
Cl	K	bdl		bdl		bdl	bdl		bdl
K	K	2.4	± 0.1	0.4	± 0.1	0.22 ± 0.07	0.20	± 0.05	0.3 ± 0.1
Ca	K	13.0	± 0.3	2.6	± 0.2	1.8 ± 0.2	4.6	± 0.2	17.6 ± 0.4
Ti	K	1.6	± 0.2	0.3	± 0.1	4.6 ± 0.2	bdl		1.4 ± 0.1
Cr	K	bdl		bdl		bdl	bdl		bdl
Mn	K	bdl		0.6 ± 0.1		bdl	bdl		0.21 ± 0.07
Fe	K	19.9	± 0.3	7.9	± 0.2	6.4 ± 0.2	16.6	± 0.3	12.9 ± 0.2
Co	K	0.9	± 0.1	bdl		bdl	bdl		bdl
Cu	K	1.3	± 0.1	1.4	± 0.1	bdl	0.29	± 0.05	bdl
Zn	K	3.9	± 0.2	bdl		0.8 ± 0.1	bdl		0.8 ± 0.1
As	K	bdl		bdl		bdl	bdl		bdl
Sr	K	11.0	± 0.2	1.4	± 0.1	2.7 ± 0.1	1.1	± 0.1	2.2 ± 0.1
Sn	K	0.6	± 0.1	bdl		0.6 ± 0.1	bdl		bdl
Sn	L	0.5	± 0.2	bdl		bdl	bdl		bdl
Sb	K	bdl		bdl		bdl	bdl		bdl
Ba	Ka	0.5	± 0.1	bdl		1.3 ± 0.2	bdl		bdl
Ba	L	11.0	± 0.3	0.4	± 0.1	5.0 ± 0.2	bdl		1.6 ± 0.2
Hg	L	75.1	± 0.6	23.3	± 0.3	bdl	bdl		bdl
Pb	L	100.2	± 0.6	426.7	± 1.2	47.3 ± 0.4	57.4	± 0.5	8.3 ± 0.2
Pb	M	bdl		4.4 ± 0.2		bdl	1.5	± 0.1	bdl