
Supplementary Materials

**Analytical Study of Polychrome Clay Sculptures
in Five-Dragon Taoist Palace of Wudang, China**



Figure S1 The sampling locations in Azure God sculpture.

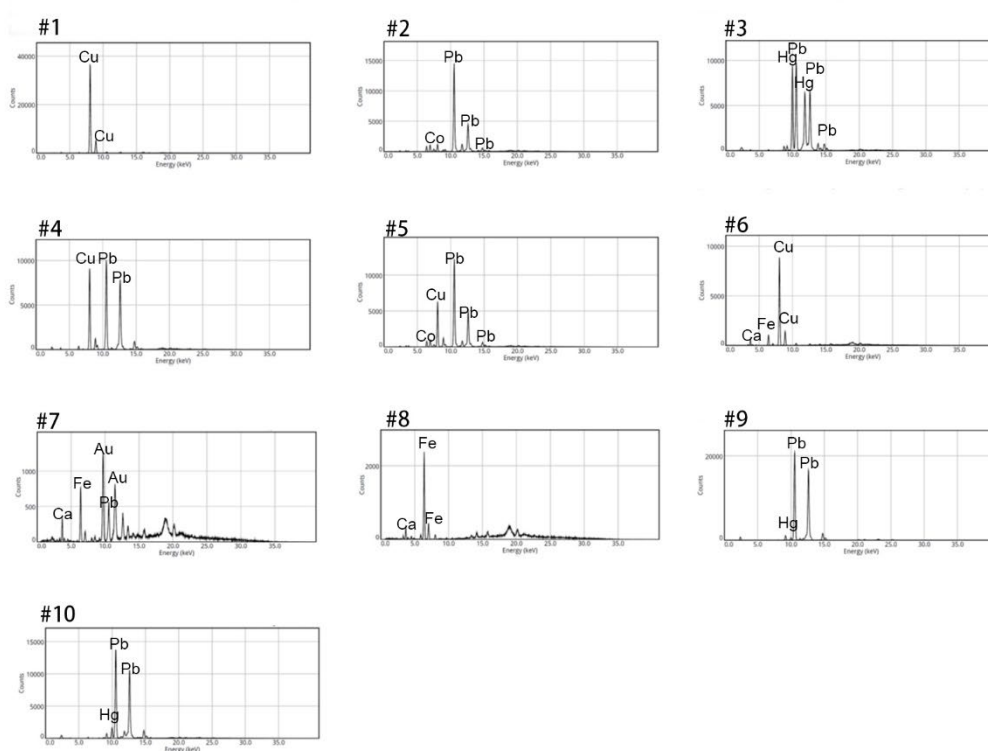


Figure S2 Visible light photography with the points analyzed with XRF and the corresponding XRF spectra of selected areas.

Table S1 The normalized elemental concentration measure by using p-XRF.

| The normalized concentration (%) | | | | | | | | | |
|----------------------------------|-------|-------|-------|-------|-------|------|------|------|------|
| | Cu | Ca | Pb | Fe | Sb | Ni | Zn | | |
| #1 | 85.47 | 11.75 | 1.66 | 0.73 | 0.17 | 0.17 | 0.07 | | |
| | K | Pb | As | Fe | Ca | Co | Ni | Bi | |
| #2 | 32.25 | 24.01 | 17.23 | 8.31 | 8.00 | 7.21 | 1.71 | 1.28 | |
| | Pb | Hg | Ca | K | Fe | Zn | | | |
| #3 | 44.86 | 41.02 | 11.01 | 2.21 | 0.78 | 0.12 | | | |
| | Pb | Cu | Ca | Fe | | | | | |
| #4 | 46.94 | 35.68 | 17.07 | 0.31 | | | | | |
| | Pb | K | Cu | Ca | As | Fe | Co | Ni | Bi |
| #5 | 22.63 | 22.50 | 20.75 | 11.40 | 10.67 | 5.42 | 4.57 | 1.02 | 1.02 |
| | Ca | Cu | K | Fe | Ti | Pb | | | |
| #6 | 47.27 | 30.52 | 12.30 | 8.00 | 1.42 | 0.51 | | | |
| | Ca | Fe | K | Au | Pb | Ti | As | Cu | |
| #7 | 62.76 | 13.44 | 12.21 | 7.40 | 2.10 | 1.48 | 0.37 | 0.25 | |
| | Ca | Fe | K | Ti | Mn | | | | |
| #8 | 44.47 | 29.82 | 20.05 | 3.68 | 1.97 | | | | |
| | Pb | Hg | K | Ca | Cd | Sn | Fe | | |
| #9 | 93.67 | 2.12 | 1.70 | 0.98 | 0.69 | 0.45 | 0.40 | | |
| | Pb | Ca | Hg | K | Fe | Cu | | | |
| #10 | 73.83 | 9.59 | 8.29 | 6.19 | 1.90 | 0.20 | | | |

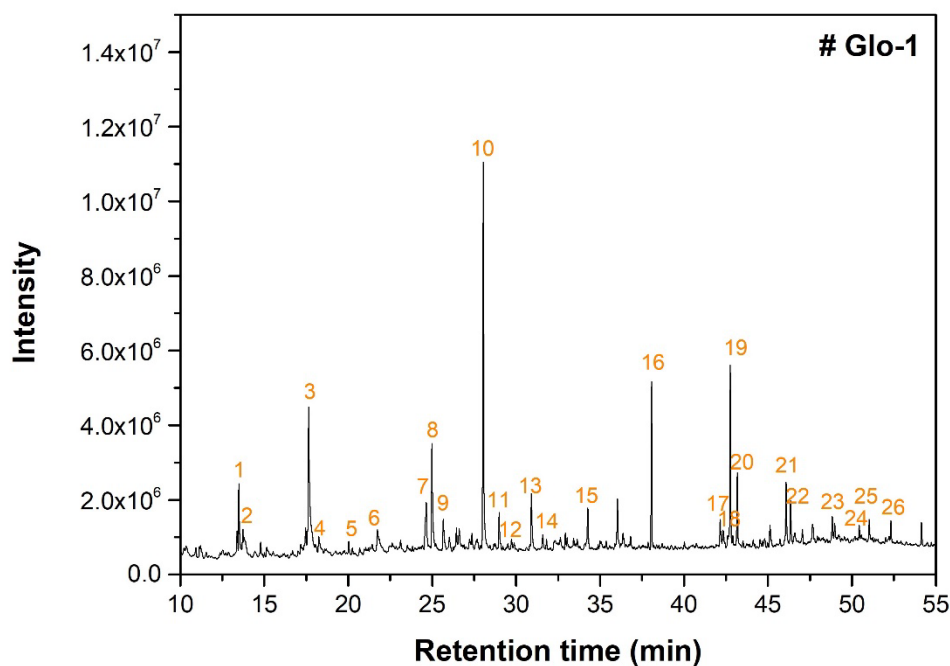


Figure S3 Total ion chromatograms (TIC) of sample #Glo-1.

Table S2 the information of the pyrolysis products of sample #Glo-1.

| # | RT/min | Pyrolysis products identified | Formula | Area/% |
|----|---------------|--|----------------------|---------|
| 1 | 13.483 | 1,2-Ethanediamine, N,N,N',N'-tetramethyl- | $C_6H_{16}N_2$ | 3.980% |
| 2 | 13.721 | Octanoic acid, methyl ester | $C_9H_{18}O_2$ | 5.222% |
| 3 | 17.651 | L-Aspartic acid, N,N-dimethyl-, dimethyl ester | $C_8H_{15}NO_4$ | 14.126% |
| 4 | 18.252 | Deoxyspergualin | $C_{17}H_{37}N_7O_3$ | 1.113% |
| 5 | 20.030 | 1-Pyridinepropanoic acid, hexahydro-3-(hydroxymethyl)- | $C_9H_{17}NO_3$ | 0.647% |
| 6 | 21.736/26.451 | Pyrrolizin-1,7-dione-6-carboxylic acid, methyl(ester) | $C_9H_{11}NO_4$ | 2.379% |
| 7 | 24.626 | 11,13-Dihydroxy-tetradec-5-enoic acid, methyl ester | $C_{15}H_{28}O_4$ | 4.241% |
| 8 | 24.983 | Octanedioic acid, dimethyl ester | $C_{10}H_{18}O_4$ | 6.582% |
| 9 | 25.655 | 9-Octadecen-12-ynoic acid, methyl ester | $C_{19}H_{32}O_2$ | 2.593% |
| 10 | 28.045 | Nonanedioic acid, dimethyl ester | $C_{11}H_{20}O_4$ | 21.719% |
| 11 | 28.984 | Dimethyl 2-methylnonane-1,9-dioate | $C_{12}H_{22}O_4$ | 2.367% |
| 12 | 29.734 | 9,10-Secocholesta-5,7,10(19)-triene-3,24,25-triol, (3 β ,5Z,7E)- | $C_{27}H_{44}O_3$ | 0.602% |
| 13 | 30.905 | Decanoic acid, 10-chloro-10-oxo-, methyl ester | $C_{11}H_{19}ClO_3$ | 3.935% |
| 14 | 31.583 | 9,12,15-Octadecatrienoic acid, 2,3-dihydroxypropyl ester, (Z,Z,Z)- | $C_{21}H_{36}O_4$ | 0.996% |
| 15 | 34.282 | Aleuritic acid, methyl ester, trimethyl ether | $C_{20}H_{40}O_5$ | 2.822% |
| 16 | 38.064 | Hexadecanoic acid, methyl ester | $C_{17}H_{34}O_2$ | 7.111% |
| 17 | 42.149 | 16-Octadecenoic acid, methyl ester | $C_{19}H_{36}O_2$ | 1.630% |

| | | | | |
|----|---------------|---|--------------------|--------|
| 18 | 42.304 | Octadecanoic acid, 4-hydroxy-, methyl ester | $C_{19}H_{38}O_3$ | 1.360% |
| 19 | 42.755 | Methyl stearate | $C_{19}H_{38}O_2$ | 0.569% |
| 20 | 43.178 | Nonanoic acid, 9-(o-propylphenyl)-, methyl ester | $C_{19}H_{30}O_2$ | 3.826% |
| 21 | 45.110 | Pregnan-20-one, 3,11,17,21-tetrahydroxy-, (3 α ,5 β ,11 β)- | $C_{21}H_{34}O_5$ | 1.657% |
| 22 | 46.073/46.329 | Oxiraneoctanoic acid, 3-octyl-, cis- | $C_{18}H_{34}O_3$ | 4.190% |
| 23 | 48.820 | d-Allo-dec-2-enonic acid, 5,8-anhydro-2,3,4,9-tetradecoxy-8-C-(hydroxymethyl)-3-methyl-7,8-O-(1-methylethylidene)-, methyl ester, 10-acetate, (E)- | $C_{18}H_{28}O_8$ | 1.865% |
| 24 | 50.432 | 4a,7b-Dihydroxy-3-(hydroxymethyl)-1,1,6,8-tetramethyl-9a-((2-methylpropanoyl)oxy)-5-oxo-1a,1b,4,4a,5,7a,7b,8,9,9a-decahydro-1H-cyclopropa[3,4]benzo[1,2-e]azulen-9-yl 2-methylbutanoate | $C_{29}H_{42}O_8$ | 0.996% |
| 25 | 51.026 | 3'H-Cycloprop[1,2]androsta-1,4,6-triene-3,17-dione, 1'-carboethoxy-1'-cyano-1 β ,2 β -dihydro- | $C_{24}H_{27}NO_4$ | 1.155% |
| 26 | 52.317 | 4a,7b-Dihydroxy-3-(hydroxymethyl)-1,1,6,8-tetramethyl-9a-((2-methylpropanoyl)oxy)-5-oxo-1a,1b,4,4a,5,7a,7b,8,9,9a-decahydro-1H-cyclopropa[3,4]benzo[1,2-e]azulen-9-yl 2-methylbutanoate | $C_{29}H_{42}O_8$ | 1.143% |

Table S3 the information of the pyrolysis products of sample #R-1.

| No. | RT/min | Pyrolysis products identified | Formula | Area/% |
|-----|-------------------|---|-------------------------|--------|
| 1 | 7.252 | 3-[N-[2-Diethylaminoethyl]-1-cyclopentenylamino]propionitrile | $C_{14}H_{25}N_3$ | 9.164 |
| 2 | 13.673 | N-[3-[N-Aziridyl]propylidene]-3-dimethylaminopropylamine | $C_{10}H_{21}N_3$ | 1.958 |
| 3 | 17.687 | Methenamine | $C_6H_{12}N_4$ | 23.316 |
| 4 | 19.833 /21.796 | Pyrrolizin-1,7-dione-6-carboxylic acid, methyl(ester) | $C_9H_{11}NO_4$ | 0.394 |
| 5 | 21.213 | Deoxyspergualin | $C_{17}H_{37}N_7O_3$ | 1.022 |
| 6 | 22.646 | Acetamide, N-methyl-N-[4-[4-fluoro-1-hexahydropyridyl]-2-butyryl]- | $C_{12}H_{19}FN_2O$ | 1.940 |
| 7 | 26.041/26.891 | 2,4,5,6,7-Pentamethoxyheptanoic acid, methyl ester | $C_{13}H_{26}O_7$ | 3.079 |
| 8 | 27.302 | 1,2,4-Tri-O-acetyl-3,5-di-O-methylribitol | $C_{13}H_{22}O_8$ | 3.338 |
| 9 | 32.927 | Methyl tetradecanoate | $C_{15}H_{30}O_2$ | 16.402 |
| 10 | 34.086 | (5-Isopropyl-3,4-dimethoxy-2,4,6-cycloheptatrienylidene)malononitrile | $C_{15}H_{16}N_2O_2$ | 0.000 |
| 11 | 35.543 | Acetic acid, (4,5,6,7-tetrahydro-1-cyano-3-methylthio-2-benzothiophen-5-ylideneamino) ester | $C_{12}H_{12}N_2O_2S_2$ | 1.060 |
| 12 | 36.048 | Oxalamic acid, N-[4-(3,4-dimethoxyphenyl)tetrahydropyran-4-ylmethyl]-, ethyl ester | $C_{18}H_{25}NO_6$ | 1.513 |
| 13 | 37.309 | Chromone, 5-hydroxy-6,7,8-trimethoxy-2,3-dimethyl- | $C_{14}H_{16}O_6$ | 1.629 |

| | | | | |
|----|--------|---------------------------------------|---|--------|
| 14 | 38.064 | Hexadecanoic acid, methyl ester | C ₁₇ H ₃₄ O ₂ | 18.529 |
| 15 | 42.143 | 16-Octadecenoic acid, methyl ester | C ₁₉ H ₃₆ O ₂ | 1.562 |
| 16 | 42.744 | Methyl stearate | C ₁₉ H ₃₈ O ₂ | 11.360 |
| 17 | 46.472 | Butanoic acid | C ₂₈ H ₃₈ Cl 2O ₈ | 2.334 |
| 18 | 52.311 | Octadecane, 3-ethyl-5-(2-ethylbutyl)- | C ₂₆ H ₅₄ | 1.400 |

Table S4 the information of the pyrolysis products of sample #R-2.

| No. | RT/min | Pyrolysis products identified | Formula | Area/% |
|-----|--------|---|--|--------|
| 1 | 10.345 | 6-Heptenoic acid, methyl ester | C ₈ H ₁₄ O ₂ | 2.316 |
| 2 | 11.207 | 2-Cyclopenten-1-one, 2,3-dimethyl- | C ₇ H ₁₀ O | 1.928 |
| 3 | 12.527 | Bicyclo[2.2.1]heptane-2,5-diol, 1,7,7-trimethyl-, (2-endo,5-exo)- | C ₁₀ H ₁₈ O ₂ | 0.882 |
| 4 | 12.896 | 2-Ethyl-3-methylcyclopent-2-en-1-one | C ₈ H ₁₂ O | 0.503 |
| 5 | 13.871 | 3-Octenoic acid, methyl ester, (Z)- | C ₉ H ₁₆ O ₂ | 0.632 |
| 6 | 13.847 | 13,16-Octadecadiynoic acid, methyl ester | C ₁₉ H ₃₀ O ₂ | 1.786 |
| 7 | 14.198 | Octanoic acid, methyl ester | C ₉ H ₁₈ O ₂ | 3.060 |
| 8 | 14.692 | Pentanedioic acid, dimethyl ester | C ₇ H ₁₂ O ₄ | 2.151 |
| 9 | 16.505 | R-Limonene | C ₁₀ H ₁₆ O ₃ | 0.543 |
| 10 | 17.564 | 2,4-Imidazolidinedione, 3,5,5-trimethyl- | C ₆ H ₁₀ N ₂ O ₂ | 1.982 |
| 11 | 17.712 | Nonanoic acid, methyl ester | C ₁₀ H ₂₀ O ₂ | 1.964 |
| 12 | 18.426 | Hexanedioic acid, dimethyl ester | C ₈ H ₁₄ O ₄ | 1.243 |
| 13 | 21.815 | Heptanedioic acid, dimethyl ester | C ₉ H ₁₆ O ₄ | 0.788 |
| 14 | 22.071 | Pyrrolizin-1,7-dione-6-carboxylic acid, methyl(ester) | C ₉ H ₁₁ NO ₄ | 0.392 |
| 15 | 23.212 | L-Proline, N-(methoxycarbonyl)-, methyl ester | C ₈ H ₁₃ NO ₄ | 1.594 |
| 16 | 24.723 | 12-Hydroxy-14-methyl-oxa-cyclotetradec-6-en-2-one | C ₁₄ H ₂₄ O ₃ | 2.499 |
| 17 | 25.061 | Octanedioic acid, dimethyl ester | C ₁₀ H ₁₈ O ₄ | 8.845 |
| 18 | 25.727 | Heptan-2-ol, 5-(2-tetrahydrofurfuryl)- | C ₁₂ H ₂₄ O ₂ | 2.196 |
| 19 | 25.769 | Oxiraneoctanoic acid, 3-octyl-, cis- | C ₁₈ H ₃₄ O ₃ | 0.913 |
| 20 | 27.642 | s-Indacene, 1,2,3,5,6,7-hexahydro-1,1,7,7-tetramethyl- | C ₁₆ H ₂₂ | 2.311 |
| 21 | 28.147 | Nonanedioic acid, dimethyl ester | C ₁₁ H ₂₀ O ₄ | 27.756 |
| 22 | 30.966 | Decanedioic acid, dimethyl ester | C ₁₂ H ₂₂ O ₄ | 4.663 |
| 23 | 31.638 | 9,12,15-Octadecatrienoic acid, 2,3-dihydroxypropyl ester, (Z,Z,Z)- | C ₂₁ H ₃₆ O ₄ | 1.648 |
| 24 | 34.337 | Methyl (12Z,15Z)-9,10,11-trimethoxyoctadeca-12,15-dienoate | C ₂₂ H ₄₀ O ₅ | 3.581 |
| | | Aleuritic acid, methyl ester, trimethyl ether | C ₂₀ H ₄₀ O ₅ | 0.000 |
| 25 | 36.085 | Pyrano[4,3-b]benzopyran-1,9-dione, 5a-methoxy-9a-methyl-3-(1-propenyl)perhydro- | C ₁₇ H ₂₄ O ₅ | 2.686 |
| 26 | 38.149 | Hexadecanoic acid, methyl ester | C ₁₇ H ₃₄ O ₂ | 3.991 |
| 27 | 38.523 | 17a-Ethyl-3β-methoxy-17a-aza-D-homoandrost-5-ene-17-one | C ₂₂ H ₃₅ NO ₂ | 0.753 |
| 28 | 41.770 | Pregn-4-ene-3,20-dione, 11-hydroxy-, (11α)- | C ₂₁ H ₃₀ O ₃ | 0.784 |

| | | | | |
|----|--------|--|---|-------|
| 29 | 42.246 | 2-[4-methyl-6-(2,6,6-trimethylcyclohex-1-enyl)hexa-1,3,5-trienyl]cyclohex-1-en-1-carboxaldehyde | C ₂₃ H ₃₂ O | 1.336 |
| 30 | 42.840 | Heptadecanoic acid, 16-methyl-, methyl ester | C ₁₉ H ₃₈ O ₂ | 3.603 |
| 31 | 43.256 | Nonanoic acid, 9-(o-propylphenyl)-, methyl ester | C ₁₉ H ₃₀ O ₂ | 2.565 |
| 32 | 44.202 | Ethyl iso-allocholate | C ₂₆ H ₄₄ O ₅ | 0.534 |
| 33 | 45.207 | Fluoxymesterone | C ₂₀ H ₂₉ FO ₃ | 0.806 |
| 34 | 46.027 | Ursodeoxycholic acid | C ₂₄ H ₄₀ O ₄ | 0.748 |
| 35 | 46.158 | Oxiraneoctanoic acid, 3-octyl-, cis- | C ₁₈ H ₃₄ O ₃ | 4.080 |
| 36 | 48.899 | d-Allo-dec-2-enonic acid, 5,8-anhydro-2,3,4,9-tetradecoxy-8-C-(hydroxymethyl)-3-methyl-7,8-O-(1-methylethylidene)-, methyl ester, 10-acetate, (E)- | C ₁₈ H ₂₈ O ₈ | 1.937 |

Table S5 the information of the pyrolysis products of sample #R-3.

| # | RT/min | Pyrolysis products identified | Formula | Area/% |
|----|---------------|--|---|--------|
| 1 | 10.831 | Butanedioic acid, dimethyl ester | C ₆ H ₁₀ O ₄ | 0.886 |
| 2 | 12.008 | Butanedioic acid, methyl-, dimethyl ester | C ₇ H ₁₂ O ₄ | 0.424 |
| 3 | 13.828 | 1,2-Ethanediamine, N,N,N',N'-tetramethyl- | C ₆ H ₁₆ N ₂ | 1.736 |
| 4 | 16.855 | N,N'-Ethylenenebis(N-ethylglycine) | C ₁₀ H ₂₀ N ₂ O ₄ | 0.883 |
| 5 | 17.622 | Razoxane | C ₁₁ H ₁₆ N ₄ O ₄ | 1.023 |
| 6 | 17.717 | Creatine | C ₄ H ₉ N ₃ O ₂ | 12.031 |
| 7 | 18.353 | 1,4-Bis(3-aminopropyl)piperazine | C ₁₀ H ₂₄ N ₄ | 0.436 |
| 8 | 22.658/25.007 | Pyrrolizin-1,7-dione-6-carboxylic acid, methyl(ester) | C ₉ H ₁₁ NO ₄ | 1.148 |
| 9 | 23.145 | 1-Pyridinepropanoic acid, hexahydro-3-(hydroxymethyl)- | C ₉ H ₁₇ NO ₃ | 0.905 |
| 10 | 25.232 | Dimethyl phthalate | C ₁₀ H ₁₀ O ₄ | 1.26 |
| 11 | 26.053/26.897 | 1,2,4-Tri-O-acetyl-3,5-di-O-methylribitol | C ₁₃ H ₂₂ O ₈ | 0.51 |
| 12 | 26.612 | 1,4-Benzenedicarboxylic acid, dimethyl ester | C ₁₀ H ₁₀ O ₄ | 0.933 |
| 13 | 27.617 | Acetamide, N-methyl-N-[4-(3-hydroxypyrrolidinyl)-2-butynyl]- | C ₁₁ H ₁₈ N ₂ O ₂ | 0.531 |
| 14 | 28.045 | Nonanedioic acid, dimethyl ester | C ₁₁ H ₂₀ O ₄ | 0.871 |
| 15 | 32.243/33.087 | N,N'-Bis(Carbobenzyloxy)-lysine methyl(ester) | C ₂₃ H ₂₈ N ₂ O ₆ | 0.161 |
| 16 | 34.746 | Benzofuran, 5,7-dichloro-2-methyl- | C ₉ H ₆ Cl ₂ O | 0.064 |
| 17 | 38.064 | Hexadecanoic acid, methyl ester | C ₁₇ H ₃₄ O ₂ | 4.858 |
| 18 | 42.149 | 16-Octadecenoic acid, methyl ester | C ₁₉ H ₃₆ O ₂ | 0.636 |
| 19 | 42.750 | Methyl stearate | C ₁₉ H ₃₈ O ₂ | 3.631 |