Data Article

Geochemical data from Angamuco, Michoacán, Mexico

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A B S T R A C T

Included here are geochemical concentrations (ppm) of ceramic artifacts and clay samples from the archaeological site of Angamuco, Mexico. Additional data include maps and photographs of the ceramic samples. Concentrations were measured via Instrumental Neutron Activation Analysis and are available here as Appendix B. These data complement the discussions and interpretations in “Geochemical Analysis and Spatial Trends of Ceramics and Clay from Angamuco, Michoacán” [1].

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Specifications table

| Subject area       | Archaeology                                      |
|--------------------|--------------------------------------------------|
| More specific subject area | Geochemistry                                    |
| Type of data       | Maps, photographs, compositional plots, tables   |
| How data was acquired | Instrumental Neutron Activation Analysis, GAUSS 8.0 |
| Data format        | Raw and analyzed                                 |
| Experimental factors | Sherds were cut, cleaned of any adhering soil and paints, and dried, before being crushed into a fine powder. Clays were fired into briquettes at 700 °C before pulverization. |
| Experimental features | Compositional analysis of ceramic paste          |

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Value of the data

- Elemental concentrations of chemical elements via INAA can provide insight into ancient ceramic production activities.
- Comparison of INAA data can be used to evaluate hypotheses about ancient trade and exchange.
- Statistical analyses of elemental concentrations may be compared to INAA and petrographic data in the region.

1. Data

Included in this dataset is additional information about the broader Angamuco ceramic sample (Tables 1, 2; see [1] Figs. 1, 2 for regional maps). Also included are photographs documenting clay sample collection, the processes of raw clay preparation (Figs. 1, 2), and examples of the ceramic samples (Appendix A). The results of the Instrumental Neutron Activation Analysis (INAA) performed at the University of Missouri Research Reactor (MURR) are subsequently presented in the form of principal component analyses characterizing the sample in aggregate (Table 3), discriminant analyses in which compositional groups are differentiated (Fig. 3). Final compositional group assignment can be found in Appendix B along with the results of bootstrapped Mahalanobis distance calculations demonstrating the likelihood of compositional group membership. We have also compared raw clay compositions from the Angamuco region to archived data from the nearby Lake Pátzcuaro vicinity (Figs. 1 and 4 in [1]; Fig. 4, Table 4). These comparisons show the relationships between compositional group and clays in the region.

2. Experimental design, materials and methods

2.1. Location

These data consist of compositional analysis from 300 archaeological ceramics and 30 raw clay specimens from the site of Angamuco in the state of Michoacán, Mexico (Figs. 1, 2 in [1]). Located approximately 9 km southeast from the Purépecha (Tarascan) imperial capital of Tzintzuntzan within

| Spatial Context     | No. of sherds |
|---------------------|---------------|
| Area A              | 16,050        |
| Area B              | 12,125        |
| Area C              | 21,159        |
| Area D              | 4,934         |
| Area E              | 5,838         |
| Area F              | 5,285         |
| Area G              | 768           |
| Pedestrian Survey   | 6,111         |
| **Total**           | **72,270**    |
the Lake Pátzcuaro Basin, Angamuco was occupied from at least the Classic through the Late Postclassic periods (c. 250–1530 CE) [2,3]. This site is presumed to have already been a large civic center prior to Purépecha development and may have played a role in regional development and interaction. Angamuco covers an area of greater than 26 km² and includes over 40,000 architectural features [4,5]. Recently, the area has been the subject of the large scale survey and excavation project, “Legacies of Resilience: The Lake Pátzcuaro Basin Archaeological Project” [3,6–12], and has produced a wide array of ceramic, lithic, and other artifacts [2] (Table 1). Aside from the 300 archaeological specimens sampled for geochemical analysis, 30 raw clay deposits were sampled from the immediate vicinity (Fig. 2 in [1]).

Table 2
Archaeological sample contexts.

| Location | Time Period | Context           | No. of samples |
|----------|-------------|-------------------|----------------|
| Area A   | Late Postclassic | Elite domestic    | 64             |
|          | Classic     | Partial burial    | 4              |
| Area B   | Late Postclassic | Large Building   | 31             |
| Area C   | Late Postclassic | Ceremonial       | 95             |
| Area D   | Late Postclassic | Ceremonial       | 18             |
| Area E   | Early Postclassic | Domestic        | 32             |
| Area F   | Middle Postclassic | Domestic       | 52             |
| Area G   | Middle Postclassic | Domestic       | 4              |
|          |             | **Total**         | **300**        |

Fig. 1. Clay sample 16 (LPB 301), Corrales: A-north view; B-east view; C-west view; D-south view (for map location, see Fig. 2 in [1]).
2.2. Sample description

The overall purpose of data collection was to test the common presumption that polity development involves the co-opting of existing local institutions and subsequently creating new administrative, economic, and ideological systems [13,14]. More specifically, we have used ceramic provenance analyses to assess the incorporation of the Angamuco region during Purépecha Empire development through the identification of diachronic and synchronic pottery consumption patterns. Archaeological samples were chosen for geochemical analysis via non-randomly stratified sampling to sufficiently represent the typological, spatial, and temporal variability at Angamuco. In total, 300 ceramic sherds were chosen from seven different areas of the site (Table 2 and Fig. 2 in [1]) including public (e.g. plazas) and private (e.g. rooms within domestic contexts) spaces. Samples from both pre-Purépecha (Classic to Middle Postclassic periods, c. 250–1350 CE) and Purépecha (c. 1350–1530 CE) era contexts to assess temporal variability (see [2, pp. 159–164] for discussion on contextual dating). Finally, thirty raw clay deposits were selected based upon their likelihood of availability to prehistoric potters. Samples were chosen from areas in close proximity to Angamuco, as 50% of prehistoric and ethnographic potters collect clays within 2 km of workshops [15–17] (Fig. 2 in [1]). Samples were typically collected from exposed profiles and GPS coordinates were recorded (Fig. 1).

2.3. INAA raw clay and archaeological sample preparation

Using standard protocol for INAA sample preparation [18–21] all clays (n = 30) and archaeological samples (n = 300) were prepared at the Archaeometry Laboratory at the University of Missouri Research Reactor. Clays were fired as briquettes at 700 °C and then ground into a fine powder using an agate mortar and pestle using procedures described by [22] (Fig. 2). Samples of 1 cm² were removed using a silicon carbide burr from archaeological specimen for analysis. In doing so, all adhering soil,
Table 3
Elemental Loadings for the pottery sample on Principal Component Axes 1 through 7.

| Variable | Mean  | PC1   | PC2   | PC3   | PC4   | PC5   | PC6   | PC7   |
|----------|-------|-------|-------|-------|-------|-------|-------|-------|
| Na       | 9080.53 | -0.112 | 0.035 | 0.312 | -0.079 | -0.309 | -0.416 | 0.092 |
| Al       | 99,937.10 | 0.019 | -0.083 | -0.012 | 0.070 | 0.148 | -0.088 | -0.056 |
| K        | 8159.28 | 0.071 | 0.245 | 0.293 | -0.229 | -0.060 | -0.154 | 0.461 |
| Ca       | 15,976.41 | -0.293 | -0.083 | 0.502 | 0.064 | 0.017 | -0.277 | -0.147 |
| Sc       | 760.95 | 0.054 | -0.171 | 0.000 | 0.132 | 0.239 | -0.209 | 0.021 |
| V        | 123.56 | 0.054 | -0.197 | -0.027 | 0.038 | 0.185 | -0.137 | 0.061 |
| Cr       | 163.10 | 0.056 | -0.210 | -0.120 | 0.107 | 0.193 | -0.111 | 0.641 |
| Mn       | 750.13 | 0.262 | -0.479 | 0.216 | -0.342 | -0.275 | 0.190 | -0.014 |
| Fe       | 49,883.95 | 0.083 | -0.213 | 0.032 | 0.102 | 0.216 | -0.203 | -0.012 |
| Co       | 9080.53 | -0.051 | -0.012 | 0.229 | 0.100 | 0.418 | 0.558 | 0.099 |
| Zn       | 79.54 | 0.136 | -0.105 | 0.133 | 0.096 | 0.191 | -0.188 | -0.096 |
| Rb       | 49.06 | 0.141 | 0.273 | 0.305 | -0.251 | 0.150 | 0.195 | 0.069 |
| Sr       | 301.69 | -0.294 | 0.001 | 0.471 | 0.081 | 0.226 | 0.162 | -0.038 |
| Zr       | 155.30 | 0.178 | 0.021 | 0.019 | 0.013 | 0.166 | -0.079 | 0.055 |
| Nb       | 0.19 | 0.279 | 0.015 | 0.013 | -0.102 | 0.261 | -0.129 | -0.162 |
| Cs       | 1.79 | 0.272 | 0.105 | -0.036 | -0.291 | 0.188 | -0.086 | -0.390 |
| Ba       | 652.33 | -0.051 | -0.012 | 0.229 | 0.100 | 0.418 | 0.558 | 0.099 |
| La       | 22.98 | 0.112 | -0.051 | 0.071 | 0.227 | -0.045 | 0.054 | 0.020 |
| Ce       | 52.91 | 0.181 | -0.120 | 0.070 | 0.009 | -0.141 | 0.201 | 0.032 |
| Nd       | 22.60 | 0.110 | -0.040 | 0.074 | 0.275 | -0.087 | 0.086 | -0.018 |
| Sm       | 5.28 | 0.126 | -0.009 | 0.072 | 0.244 | -0.102 | 0.034 | -0.021 |
| Eu       | 1.19 | -0.007 | -0.164 | 0.006 | 0.262 | -0.047 | 0.050 | -0.023 |
| Tb       | 0.73 | 0.152 | 0.060 | 0.129 | 0.262 | -0.192 | 0.041 | -0.097 |
| Dy       | 4.34 | 0.148 | 0.066 | 0.104 | 0.288 | -0.142 | 0.004 | -0.065 |
| Yb       | 2.44 | 0.170 | 0.077 | 0.105 | 0.211 | -0.150 | 0.048 | -0.073 |
| Lu       | 0.34 | 0.172 | 0.070 | 0.088 | 0.228 | -0.135 | 0.047 | -0.063 |
| Hf       | 6.58 | 0.195 | 0.063 | 0.052 | 0.011 | 0.109 | -0.104 | 0.006 |
| Ta       | 1.22 | 0.276 | 0.169 | 0.137 | 0.021 | 0.082 | -0.147 | -0.084 |
| Th       | 5.74 | 0.255 | 0.163 | 0.047 | 0.016 | 0.132 | -0.062 | -0.002 |
| U        | 1.46 | 0.311 | 0.234 | 0.010 | 0.105 | -0.093 | 0.029 | 0.314 |
| Eigenvalues: | 0.361 | 0.129 | 0.091 | 0.034 | 0.028 | 0.022 | 0.015 |
| Total Variation explained: | 47.79% | 17.09% | 12.04% | 4.52% | 3.70% | 2.92% | 1.92% |

Fig. 3. Results of canonical discriminant analysis (including raw clay samples).
glaze, slip, and/or paints were removed, to minimize the error produced by the inadvertent measurement of non-paste compositions. Specimens were then washed in deionized water and dried before being ground into a fine powder. A sample of 150 mg of powder from each specimen was then sealed into a high-density polyethylene vile, while a second sample of 200 mg was measured into a high-purity quartz vial for long irradiation. Standards in the form of Basalt Rock and Coal Fly Ash from the National Institute of Standards and Technology (NIST) as well as control samples of Obsidian Rock and Ohio Red Clay were also utilized.

Irradiation consisted of three separate gamma counts. Following an initial neutron flux of \(8 \times 10^{13} \text{n cm}^{-2} \text{s}^{-1}\) of five seconds was accessed through a pneumatic tube system [18], a gamma count of 720 seconds measured concentrations of nine short-lived elements: aluminum (Al), barium (Ba), calcium (Ca), dysprosium (Dy), potassium (K), manganese (Mn), sodium (Na), titanium (Ti), and vanadium (V). The second larger sample was subjected to a 24-h irradiation at a neutron flux of \(5 \times 10^{13} \text{n cm}^{-2} \text{s}^{-1}\). The sample then decayed for seven days before recording gamma counts of 1800 s using a high-resolution germanium detector. The following medium half-life elements were recorded: arsenic (As), lanthanum (La), lutetium (Lu), neodymium (Nd), samarium (Sm), uranium (U), and ytterbium (Yb). After an additional 4 week decay process, a final count of 8500 s yielded measurements of seventeen long lived elements; cerium (Ce), cobalt (Co), chromium (Cr), cesium (Cs), europium (Eu), iron (Fe), hafnium (Hf), nickel (Ni), rubidium (Rb), antimony (Sb), scandium (Sc), strontium (Sr), tantalum (Ta), terbium (Tb), thorium (Th), zirconium (Zr). Due to the frequency at which its proportion falls below detection limits, Nickel (Ni) was removed from analysis. The remaining 32 elements were recorded as parts per million and included in excel spreadsheets for importation into statistical analysis software.

2.4. Multivariate statistical analysis of compositional data

Using GAUSS 8.0 software, a variety of multivariate statistical analyses using base-10 logarithms were utilized to characterize the sample in aggregate, differentiate compositional groups, and compare the Angamuco sample with previously collected archived data (Table 3). A comprehensive discussion of these analytical methods, including principal component analyses, discriminant function analyses, and Mahalanobis distance calculations can be found elsewhere (e.g. [18,19,23–26].

![Raw Clay Calcium (Ca) Concentrations](image)

**Fig. 4.** Results of compositional interpolation (calcium) in the Lake Pátzcuaro Basin.
our analysis, we first began with principal component analysis (Fig. 3 in [1]) per the provenance postulate [27], this was followed by visual inspection of bivariate plots and bootstrapped multidimensional Mahalanobis Distance calculations to differentiate compositional groups (Appendix B). These groups were further defined through canonical discriminant analysis (Fig. 3). The geochemical data were also compared to archived data at MURR, most significantly from the Lake Pátzcuaro region [28] through elemental biplots, Mahalanobis distance, and through mean Euclidean distance in multivariate compositional space (Table 3 in [1]). ArcMap 10.3 was utilized to visually assess compositional variability across the landscape using an interpolation based upon the composition of raw clay from Angamuco and the archived Lake Pátzcuaro samples (Fig. 4).

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Appendix A

Sample photos of Angamuco sherd fragments submitted for INAA.
See Figs. 1–8 here.

Fig. 1. Sample MURR 232. Bichrome bowl fragment from Area A (AN10E25-5).
Fig. 2. Sample MURR 203. Polychrome tripod bowl fragment from Area B (BN12E10-2c3).

Fig. 3. Sample MURR 65. Polychrome jar fragment from Area C (CN12E14-1).

Fig. 4. Sample MURR 106. Bichrome negative bowl fragment from Area C (CN12E16-7).
Fig. 5. Sample MURR 5. Bichrome fragment from Area D (DN0E2–5).

Fig. 6. Sample MURR 112. Annual base fragment from Area E (E1N0E0–1).

Fig. 7. Sample MURR 143. Eroded jar fragment from Area F (F1S1E0–3F1).
Appendix B

**Mahalonobis results confirming group membership.**

Membership probabilities(%) for samples in group: Group A. Probabilities calculated after removing each sample from group.

| ANID   | Group A | Group B | Group C | Group D | Best Group |
|--------|---------|---------|---------|---------|------------|
| LPB001 | 46.591  | 3.442   | 0.000   | 0.298   | Group A    |
| LPB003 | 88.834  | 7.550   | 0.000   | 0.088   | Group A    |
| LPB006 | 71.352  | 3.260   | 0.000   | 0.023   | Group A    |
| LPB009 | 44.322  | 16.089  | 0.000   | 0.001   | Group A    |
| LPB010 | 37.889  | 0.862   | 0.003   | 7.033   | Group A    |
| LPB012 | 56.933  | 1.065   | 0.000   | 2.435   | Group A    |
| LPB017 | 76.368  | 14.841  | 0.000   | 0.003   | Group A    |
| LPB019 | 92.402  | 2.690   | 0.000   | 0.269   | Group A    |
| LPB023 | 93.740  | 4.715   | 0.000   | 0.027   | Group A    |
| LPB025 | 44.528  | 1.810   | 0.000   | 0.004   | Group A    |
| LPB026 | 11.014  | 2.587   | 0.025   | 0.343   | Group A    |
| LPB027 | 17.120  | 0.386   | 0.000   | 7.583   | Group A    |
| LPB028 | 6.434   | 0.178   | 0.000   | 0.056   | Group A    |
| LPB030 | 46.461  | 2.308   | 0.000   | 0.003   | Group A    |
| LPB031 | 34.902  | 3.213   | 0.000   | 0.071   | Group A    |
| LPB035 | 70.574  | 15.679  | 0.000   | 0.004   | Group A    |
| LPB040 | 0.201   | 0.073   | 0.001   | 13.804  | Group D    |
| LPB041 | 84.754  | 2.480   | 0.000   | 0.130   | Group A    |
| LPB042 | 70.992  | 6.493   | 0.000   | 0.002   | Group A    |
| LPB045 | 55.964  | 13.232  | 0.000   | 0.002   | Group A    |
| LPB047 | 91.358  | 4.345   | 0.000   | 0.040   | Group A    |
| LPB048 | 96.359  | 10.068  | 0.000   | 0.015   | Group A    |
| LPB051 | 39.037  | 9.847   | 0.003   | 0.085   | Group A    |
| LPB052 | 60.380  | 3.223   | 0.000   | 0.227   | Group A    |
| LPB053 | 39.673  | 4.540   | 0.000   | 0.002   | Group A    |
| LPB054 | 10.986  | 8.127   | 0.000   | 0.000   | Group A    |
| LPB056 | 64.773  | 2.728   | 0.000   | 0.006   | Group A    |
| LPB058 | 86.957  | 4.866   | 0.000   | 0.019   | Group A    |

Fig. 8. Sample MURR 178. Bichrome fragment with cross-hatching from Area F (F6S3E0–15).
| LPB059 | 76.526 | 15.573 | 0.000 | 0.009 | Group A |
| LPB062 | 54.249 | 15.813 | 0.002 | 0.019 | Group A |
| LPB065 | 73.751 | 3.915  | 0.000 | 0.276 | Group A |
| LPB074 | 76.233 | 3.211  | 0.000 | 0.053 | Group A |
| LPB077 | 33.511 | 0.776  | 0.000 | 5.167 | Group A |
| LPB079 | 71.617 | 3.244  | 0.002 | 1.074 | Group A |
| LPB082 | 49.147 | 1.156  | 0.000 | 0.230 | Group A |
| LPB083 | 64.615 | 5.745  | 0.000 | 0.096 |         |
| LPB085 | 86.417 | 5.518  | 0.000 | 0.150 | Group A |
| LPB089 | 39.076 | 17.300 | 0.001 | 0.002 | Group A |
| LPB091 | 42.966 | 13.952 | 0.002 | 0.008 | Group A |
| LPB094 | 78.287 | 10.955 | 0.001 | 0.049 | Group A |
| LPB096 | 3.811  | 0.717  | 0.000 | 0.000 | Group A |
| LPB114 | 3.812  | 0.124  | 0.000 | 0.002 | Group A |
| LPB121 | 22.449 | 0.505  | 0.002 | 14.240| Group A |
| LPB128 | 3.166  | 5.573  | 0.023 | 0.031 | Group B |
| LPB129 | 36.983 | 6.882  | 0.004 | 0.047 | Group A |
| LPB140 | 62.356 | 2.469  | 0.000 | 0.182 | Group A |
| LPB141 | 95.714 | 3.221  | 0.000 | 0.456 | Group A |
| LPB143 | 11.006 | 0.820  | 0.000 | 0.005 | Group A |
| LPB144 | 11.385 | 2.207  | 0.000 | 0.051 | Group A |
| LPB149 | 14.290 | 35.611 | 0.000 | 0.000 | Group B |
| LPB151 | 81.581 | 2.855  | 0.000 | 0.090 | Group A |
| LPB158 | 90.284 | 4.754  | 0.000 | 0.042 | Group A |
| LPB159 | 10.703 | 6.220  | 0.001 | 0.004 | Group A |
| LPB160 | 81.976 | 5.741  | 0.000 | 0.013 | Group A |
| LPB161 | 49.694 | 2.798  | 0.000 | 0.002 | Group A |
| LPB162 | 55.235 | 2.272  | 0.000 | 0.009 | Group A |
| LPB163 | 43.214 | 1.073  | 0.000 | 0.015 | Group A |
| LPB164 | 32.538 | 12.910 | 0.000 | 0.001 | Group A |
| LPB166 | 8.102  | 0.184  | 0.000 | 17.718| Group D |
| LPB167 | 25.831 | 0.386  | 0.001 | 15.510| Group A |
| LPB168 | 60.803 | 1.062  | 0.000 | 2.197 | Group A |
| LPB170 | 98.689 | 4.770  | 0.000 | 0.123 | Group A |
| LPB171 | 51.916 | 6.037  | 0.004 | 0.256 | Group A |
| LPB172 | 37.449 | 20.458 | 0.000 | 0.000 | Group A |
| LPB173 | 70.989 | 2.305  | 0.000 | 0.412 | Group A |
| LPB174 | 92.709 | 4.194  | 0.000 | 0.088 | Group A |
| LPB175 | 54.512 | 1.531  | 0.000 | 0.264 | Group A |
| LPB177 | 34.233 | 2.033  | 0.000 | 0.001 | Group A |
| LPB179 | 73.696 | 10.661 | 0.001 | 0.037 | Group A |
| LPB180 | 41.448 | 6.174  | 0.000 | 0.001 | Group A |
| LPB181 | 88.290 | 2.896  | 0.000 | 0.131 | Group A |
| LPB182 | 27.825 | 0.473  | 0.001 | 12.796| Group A |
| LPB184 | 41.191 | 3.120  | 0.000 | 0.067 | Group A |
| LPB185 | 40.923 | 1.184  | 0.002 | 3.419 | Group A |
| LPB187 | 47.440 | 0.801  | 0.001 | 6.967 | Group A |
| LPB188 | 70.714 | 1.385  | 0.000 | 0.683 | Group A |
| LPB189 | 60.793 | 13.549 | 0.001 | 0.031 | Group A |
| LPB190 | 5.083  | 0.162  | 0.028 | 23.232| Group D |
| LPB191 | 46.997 | 2.582  | 0.000 | 0.019 | Group A |
| LPB193 | 88.732 | 5.643  | 0.001 | 0.183 | Group A |
| LPB194 | 95.294 | 8.113  | 0.000 | 0.032 | Group A |
| LPB201 | 7.846  | 0.577  | 0.000 | 0.738 | Group A |
LPB202 85.760 6.352 0.000 0.006 Group A
LPB204 84.769 14.777 0.000 0.006 Group A
LPB205 1.143 26.145 0.000 0.000 Group B
LPB206 69.971 9.968 0.000 0.012 Group A
LPB211 95.946 5.506 0.000 0.023 Group A
LPB212 66.836 2.261 0.002 2.055 Group A
LPB213 0.743 15.233 0.000 0.000 Group B
LPB214 57.957 1.869 0.000 0.018 Group A
LPB215 15.313 42.156 0.000 0.000 Group B
LPB221 79.904 11.361 0.001 0.027 Group A
LPB223 79.904 11.361 0.001 0.027 Group A
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LPB293 79.904 11.361 0.001 0.027 Group A
LPB294 79.904 11.361 0.001 0.027 Group A
LPB295 79.904 11.361 0.001 0.027 Group A
LPB296 79.904 11.361 0.001 0.027 Group A
LPB297 79.904 11.361 0.001 0.027 Group A
LPB298 79.904 11.361 0.001 0.027 Group A
LPB299 79.904 11.361 0.001 0.027 Group A
LPB300 79.904 11.361 0.001 0.027 Group A

Membership probabilities (%) for samples in group: Group B.
Probabilities calculated after removing each sample from group.

| ANID  | Group A | Group B | Group C | Group D | Best Group |
|-------|---------|---------|---------|---------|------------|
| LPB002| 18.170  | 31.602  | 0.001   | 0.001   | Group B    |
| LPB007| 0.000   | 45.456  | 0.000   | 0.000   | Group B    |
| LPB008| 0.021   | 18.514  | 0.000   | 0.000   | Group B    |
| LPB020| 0.435   | 59.169  | 0.000   | 0.000   | Group B    |
| LPB022| 0.000   | 50.364  | 0.000   | 0.000   | Group B    |
| LPB024| 0.000   | 99.396  | 0.000   | 0.000   | Group B    |
| LPB032| 0.108   | 80.862  | 0.000   | 0.000   | Group B    |
| ANID   | Group A | Group B | Group C  | Group D | Best Group |
|--------|---------|---------|----------|---------|------------|
| LPB013 | 0.000   | 0.000   | 77.397   | 0.002   | Group C    |
| LPB044 | 0.000   | 0.000   | 82.918   | 0.000   | Group C    |
| ANID    | Group A | Group B | Group C | Group D | Best Group |
|---------|---------|---------|---------|---------|------------|
| LPB011  | 2.295   | 0.043   | 0.004   | 58.811  | Group D    |
| LPB016  | 0.011   | 0.001   | 0.144   | 90.044  | Group D    |
| LPB018  | 0.000   | 0.000   | 0.128   | 38.084  | Group D    |
| LPB021  | 0.000   | 0.000   | 0.206   | 49.849  | Group D    |
| LPB036  | 0.000   | 0.000   | 0.255   | 71.008  | Group D    |
| LPB037  | 0.270   | 0.006   | 0.063   | 95.461  | Group D    |
| LPB064  | 0.011   | 0.001   | 0.334   | 84.954  | Group D    |
| LPB067  | 0.373   | 0.066   | 0.016   | 19.668  | Group D    |

Membership probabilities (%) for samples in group: Group D.
Probabilities calculated after removing each sample from group.
| LPB069 | 0.001 | 0.000 | 0.033 | 62.449 | Group D |
|--------|--------|--------|--------|--------|---------|
| LPB078 | 0.016 | 0.003 | 0.047 | 70.271 | Group D |
| LPB092 | 0.665 | 0.022 | 0.002 | 43.146 | Group D |
| LPB095 | 0.035 | 0.001 | 0.135 | 97.217 | Group D |
| LPB102 | 0.000 | 0.000 | 4.129 | 6.501  | Group D |
| LPB126 | 0.212 | 0.044 | 0.007 | 77.792 | Group D |
| LPB133 | 0.018 | 0.001 | 0.072 | 76.404 | Group D |
| LPB145 | 0.000 | 0.000 | 0.017 | 31.859 | Group D |
| LPB146 | 0.000 | 0.000 | 1.087 | 54.646 | Group D |
| LPB147 | 0.000 | 0.000 | 1.122 | 28.372 | Group D |
| LPB148 | 0.657 | 0.019 | 0.088 | 63.701 | Group D |
| LPB150 | 0.000 | 0.000 | 0.165 | 69.794 | Group D |
| LPB154 | 0.000 | 0.000 | 0.160 | 38.497 | Group D |
| LPB155 | 0.000 | 0.000 | 0.001 | 0.211  | Group D |
| LPB157 | 0.065 | 0.003 | 0.227 | 80.891 | Group D |
| LPB165 | 5.077 | 0.071 | 0.001 | 37.784 | Group D |
| LPB169 | 0.060 | 0.012 | 0.000 | 8.488  | Group D |
| LPB186 | 0.015 | 0.001 | 0.539 | 61.524 | Group D |
| LPB192 | 0.000 | 0.000 | 0.240 | 18.356 | Group D |
| LPB207 | 0.666 | 0.012 | 0.025 | 87.665 | Group D |
| LPB226 | 0.038 | 0.004 | 0.001 | 24.163 | Group D |
| LPB227 | 1.441 | 0.054 | 0.024 | 48.294 | Group D |
| LPB229 | 0.000 | 0.000 | 0.044 | 29.146 | Group D |
| LPB230 | 0.003 | 0.000 | 0.112 | 83.915 | Group D |
| LPB233 | 0.006 | 0.001 | 0.000 | 1.558  | Group D |
| LPB237 | 0.000 | 0.000 | 0.025 | 1.665  | Group D |
| LPB241 | 0.000 | 0.000 | 0.173 | 59.675 | Group D |
| LPB246 | 0.346 | 0.017 | 0.057 | 65.550 | Group D |
| LPB249 | 0.837 | 0.016 | 0.002 | 54.017 | Group D |
| LPB253 | 0.978 | 0.053 | 0.000 | 11.249 | Group D |
| LPB263 | 0.031 | 0.002 | 0.528 | 41.339 | Group D |
| LPB273 | 0.001 | 0.000 | 0.024 | 58.275 | Group D |
| LPB277 | 1.014 | 0.031 | 0.059 | 56.786 | Group D |
| LPB296 | 0.008 | 0.000 | 0.219 | 96.854 | Group D |
| LPB297 | 0.014 | 0.001 | 0.074 | 88.387 | Group D |

**Transparency document. Supporting information**

Transparency data associated with this article can be found in the online version at https://doi.org/10.1016/j.dib.2018.12.071.

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