

Reporting Summary

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Statistical parameters

When statistical analyses are reported, confirm that the following items are present in the relevant location (e.g. figure legend, table legend, main text, or Methods section).

n/a Confirmed

- ☒ ☐ The exact sample size (n) for each experimental group/condition, given as a discrete number and unit of measurement
- ☒ ☐ An indication of whether measurements were taken from distinct samples or whether the same sample was measured repeatedly
- ☒ ☐ The statistical test(s) used AND whether they are one- or two-sided
Only common tests should be described solely by name; describe more complex techniques in the Methods section.
- ☒ ☐ A description of all covariates tested
- ☒ ☐ A description of any assumptions or corrections, such as tests of normality and adjustment for multiple comparisons
- ☒ ☐ A full description of the statistics including central tendency (e.g. means) or other basic estimates (e.g. regression coefficient) AND variation (e.g. standard deviation) or associated estimates of uncertainty (e.g. confidence intervals)
- ☒ ☐ For null hypothesis testing, the test statistic (e.g. F , t , r) with confidence intervals, effect sizes, degrees of freedom and P value noted
Give P values as exact values whenever suitable.
- ☒ ☐ For Bayesian analysis, information on the choice of priors and Markov chain Monte Carlo settings
- ☒ ☐ For hierarchical and complex designs, identification of the appropriate level for tests and full reporting of outcomes
- ☒ ☐ Estimates of effect sizes (e.g. Cohen's d , Pearson's r), indicating how they were calculated
- ☒ ☐ Clearly defined error bars
State explicitly what error bars represent (e.g. SD, SE, CI)

Our web collection on [statistics for biologists](#) may be useful.

Software and code

Policy information about [availability of computer code](#)

Data collection

No software was used.

Data analysis

Existing software cited in text, and reference where appropriate in references cited (Main Text and SI).

For manuscripts utilizing custom algorithms or software that are central to the research but not yet described in published literature, software must be made available to editors/reviewers upon request. We strongly encourage code deposition in a community repository (e.g. GitHub). See the Nature Research [guidelines for submitting code & software](#) for further information.

Data

Policy information about [availability of data](#)

All manuscripts must include a [data availability statement](#). This statement should provide the following information, where applicable:

- Accession codes, unique identifiers, or web links for publicly available datasets
- A list of figures that have associated raw data
- A description of any restrictions on data availability

The data that support the findings of this study are available either in the supplementary material or from the corresponding author upon reasonable request.

Field-specific reporting

Please select the best fit for your research. If you are not sure, read the appropriate sections before making your selection.

☐ Life sciences ☒ Behavioural & social sciences

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Behavioural & social sciences

Study design

All studies must disclose on these points even when the disclosure is negative.

Study description	This study is a mixed-methods analysis of archaeological remains from one ancient site in Ecuador. The analysis includes descriptions of materials recovered along with chemical and molecular identifications of the substances found on and in the material remains.
Research sample	The research sample consists of archaeological pottery vessel fragments that were excavated in collaboration with and permission from Ecuadorean authorities and institutions. The samples were selected from well-preserved contexts at the site which had the greatest probability of yielding intact, and uncontaminated specimens.
Sampling strategy	The sampling was judgmental with the aim of recovering as wide a range of ancient specimens as possible from as many contexts (houses, ceremonial structures, and refuse deposits) as possible to increase the chances of finding chemical and biomarker signals of the use of <i>Theobroma cacao</i> (the botanical source of chocolate).
Data collection	Standard archaeological excavation and analysis methods were used, as were laboratory analysis methods for the chemical analysis at the University of California, Davis; the starch grain analysis at the University of Calgary, and the ancient DNA analysis at CIRAD in Montpellier, France.
Timing	All sampling took place over a period of several years, beginning in 2011 and continuing sporadically until 2016.
Data exclusions	No data were excluded from the analysis after final sampling of appropriate artifacts was made.
Non-participation	Not applicable.
Randomization	Not applicable.