

Gas Chromatography-Mass Spectrometry data of adhesives and adhesive ingredients used in Zambia and collected during ethnographic research

Introduction:

The samples included in this dataset were collected as part of an ethnographic study in May and August 2022. The Humanities and Social Sciences Research Ethics committee of the University of Zambia (HSSREC) approved this study (reference number HSSREC-2021-JUL-005). Many thanks to Pr. David Chuba and Ms. Florence Nyirenda at the University of Zambia and Ms. Chabwera Phiri at Livingstone Museum for providing access to the herbarium collection and advise in the specimen identification. This research was approved by the Natural Heritage Conservation Commission (NHCC) of Zambia.

The GC-MS dataset was formed between May and August 2023 as part of the Ancient Adhesives project under the European Union's Horizon 2020 research and innovation programme Grant Agreement No. 678 804151 (Grant holder G.H.J.L.). It is being made public to act as supplementary data for publications and for other researchers to use this data in their own work. Due to the nature of the GC-MS data, all raw files have been supplied which will allow further processing in the original software.

The dataset includes 26 .zip files with the raw GC-MS data and two .xlsx files containing the processed and summarized information. Each .zip file contains the files necessary to open and manipulate the data using the original software Agilent OpenLab 2.5.

List of .zip files containing raw GC-MS data. Within each file, there is a .DX file (for opening with Agilent OpenLab 2.5) and accompanying .ACAML, .DX, .MFX, .BIN, .RX, .PMX, and .AMX files:

20230511 Zam_11.zip
20230511 Zam_21.zip
20230511 Zam_26.zip
20230511 Zam_39.zip
20230601 ZAM 1.zip
20230601 ZAM 3.zip
20230601 ZAM 4.zip
20230601 ZAM 12.zip
20230601 ZAM 15.zip
20230601 ZAM 20.zip
20230601 ZAM 31.zip
20230601 ZAM 35.zip
20230601 ZAM 40.zip
20230828 Zam_2.zip
20230828 Zam_5.zip
20230828 Zam_6.zip
20230828 Zam_8.zip
20230828 Zam_10.zip
20230828 Zam_17.zip
20230828 Zam_18.zip
20230828 Zam_19.zip
20230828 Zam_22.zip
20230828 Zam_23.zip
20230828 Zam_25.zip
20230828 Zam_37.zip

20230828 Zam_38.zip

List of .xlsx file containing processed information and a summary of the results:

GC-MS results.xlsx

GC-MS results overview.xlsx

Each sheet of GC-MS results.xlsx contains the complete GC-MS data exported for samples analyzed as well as the MS data and automated molecular data against the National Institute of Standards and Technology (NIST) library. In GC-MS results overview.xlsx file, the identified molecules are summarized according to molecule type for each sample.

RT= Retention time (min)

Type = Type of integration. BB = baseline to baseline, BV = baseline to valley, VB = valley to baseline, VV = valley to valley, MV = manual to valley, VM = valley to manual, MB = manual to baseline, MM = manually integrated

Width (min) = Peak width

Area = Peak area

Height = Peak height

Area % = Peak area %

Compound name = compound automatically identified from NIST library using Agilent Openlab corresponding to the RT.

Score = Match factor, or a comparison of the unknown's mass spectrum's peak to those of the peaks in the library's spectra.

Rev. Score = The match factor when the peaks in the unknown's spectrum that are not in the library's known reference spectrum are ignored.

Prob.% = Probability percent that the compound is identified correctly within the NIST library.

CAS # = Chemical Abstracts Service Number – A unique accession number assigned to a given compound

Library Id = Identification number from the NIST mass spectral library