

Spatial assignment of test sample

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Input

Website Identifier: Blind 16_CD

Isotope values of test sample

Table 1: Isotope values of test sample

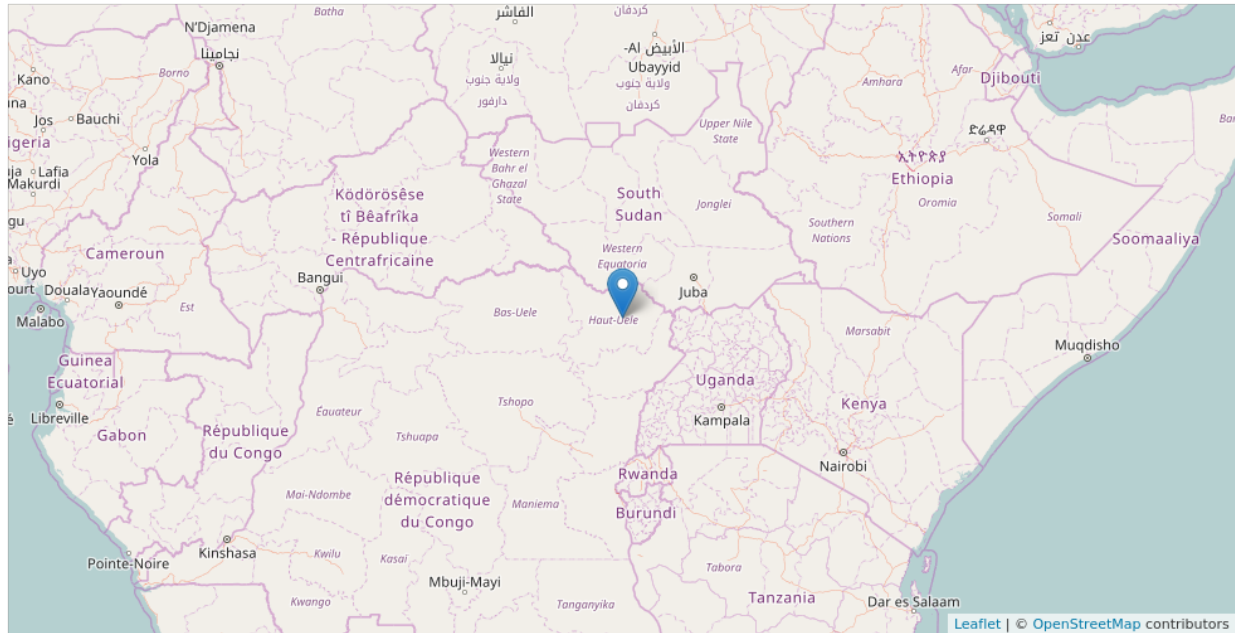
13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
-24.2	11.1	16.3	-28.1	4.1

Output

Model

```
##
## Call:
## train.kknn(formula = fmla, data = ivory.train, kmax = 15, distance = 2, kernel = knl)
##
## Type of response variable: nominal
## Minimal misclassification: 0.3765867
## Best kernel: triangular
## Best k: 15
Classifier: country_code
```

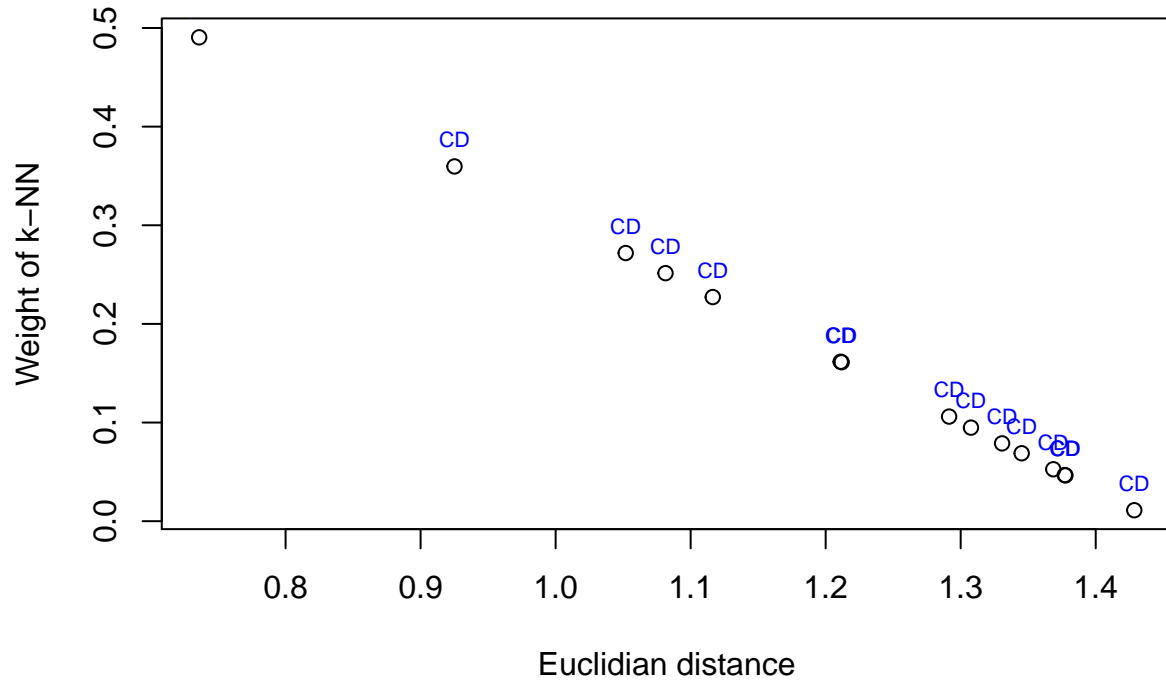
Map of best fitted reference sample



Best fitted reference sample:

- Site: Dem. Rep. Congo, Gangala na Bodio
- Country: CD
- Region: Central Africa
- CITES: Appendix I
- Lat: 3.4
- Lon: 29.09

Assignment of test sample to nearest neighbours



Best fitted reference entries

Table 2: Details of best fitted reference entry (row 1) and other fitted entries within best classifier

lon	lat	location	13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
29.09	3.40	Dem. Rep. Congo, Gangala na Bodio	-24.4	11.7	17.6	-29.7	3.9
23.55	-1.35	Dem. Rep. Congo, Moma	-24.8	11.4	16.0	-36.8	4.9
29.29	0.29	Dem. Rep. Congo, Beni	-24.7	11.4	17.1	-37.3	5.3
28.50	-1.25	Dem. Rep. Congo, Lubeleke	-23.1	9.9	17.6	-26.2	3.5
27.20	-2.40	Dem. Rep. Congo, Shabunda terr	-22.5	10.3	17.3	-29.5	3.4
23.55	-1.35	Dem. Rep. Congo, Moma	-24.2	9.9	16.8	-35.4	6.7
29.29	0.29	Dem. Rep. Congo, Beni terr	-24.1	10.2	18.2	-22.7	5.3
27.20	-2.42	Dem. Rep. Congo, Bakisi	-22.4	10.9	16.3	-35.5	2.2
29.51	1.32	Dem. Rep. Congo, Irumu	-24.5	10.1	16.3	-39.9	5.7
26.23	1.52	Dem. Rep. Congo, Panga	-24.6	12.1	17.1	-39.9	5.2
27.57	2.09	Dem. Rep. Congo, Wamba	-23.2	9.5	15.9	-33.7	6.7
23.55	-1.35	Dem. Rep. Congo, Moma	-24.1	11.3	16.6	-40.9	6.3
28.56	-4.18	Dem. Rep. Congo, Mukunga-Capita	-22.8	9.1	16.1	-31.8	5.7
27.18	2.25	Dem. Rep. Congo, Medje	-24.2	11.9	17.4	-37.8	6.8
18.20	-1.55	Dem. Rep. Congo, Leopold ii meer	-24.3	11.2	16.0	-43.3	4.0

Country of prediction: CD

Testing robustness of assignment: Wilcoxon signed rank test

If p-value > 0.05 , the test concludes that the isotope signature of the test sample is similar to the respective nearest neighbour reference sample.

P-values for the k nearest neighbours in Wilcoxon Test

“0.88047764, 0.47730701, 0.27029878, 0.03674213, 0.00506248, 0.00267555, 0.00267555, 0.00133831, 0.00062930, 0.00034126, 0.00008731, 0.00003100, 0.00000701, 0.00000503, 0.00000049”

Goodness of fit of test sample:

- good fit: if $p > 0.05$ for at least two tested nearest neighbour reference samples;
- moderate fit: if $p > 0.05$ for at least one tested nearest neighbour reference samples;
- uncertain: if $p > 0.05$ for none of the tested nearest neighbour reference samples.

Assumption: At least two nearest reference samples are available.

Overall goodness of fit of test sample: “**good fit**”