

Spatial assignment of test sample

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Input

Website Identifier: Blind 11_CD

Isotope values of test sample

Table 1: Isotope values of test sample

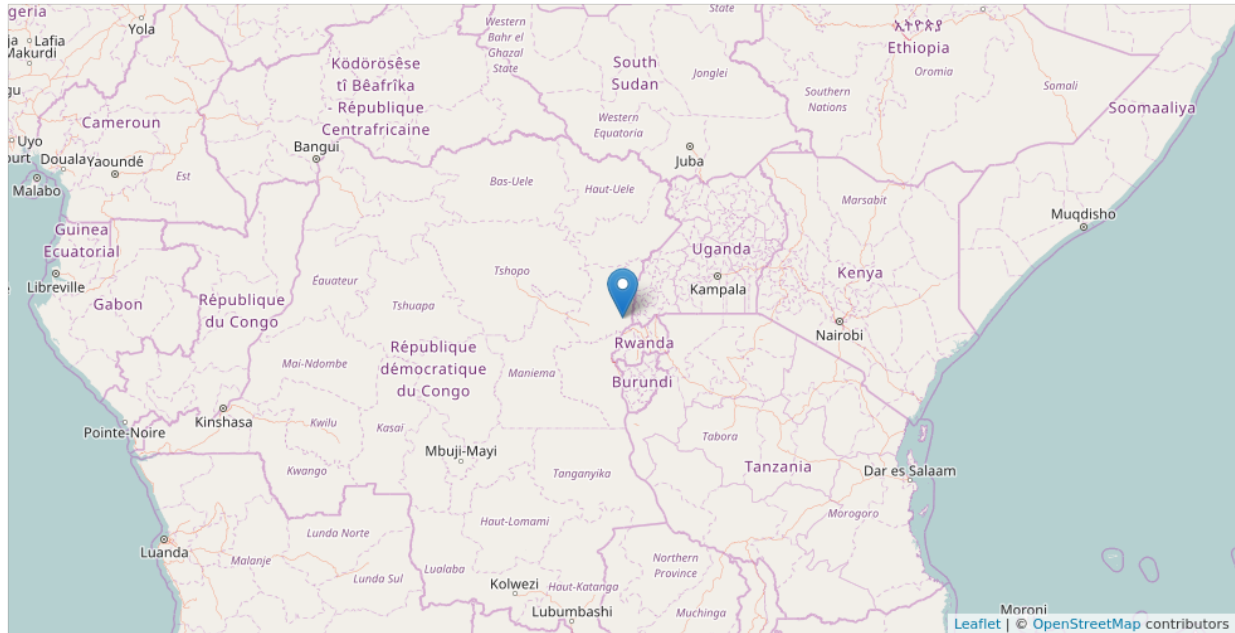
13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
-18.9	9.7	17.4	-19.9	2.1

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
```

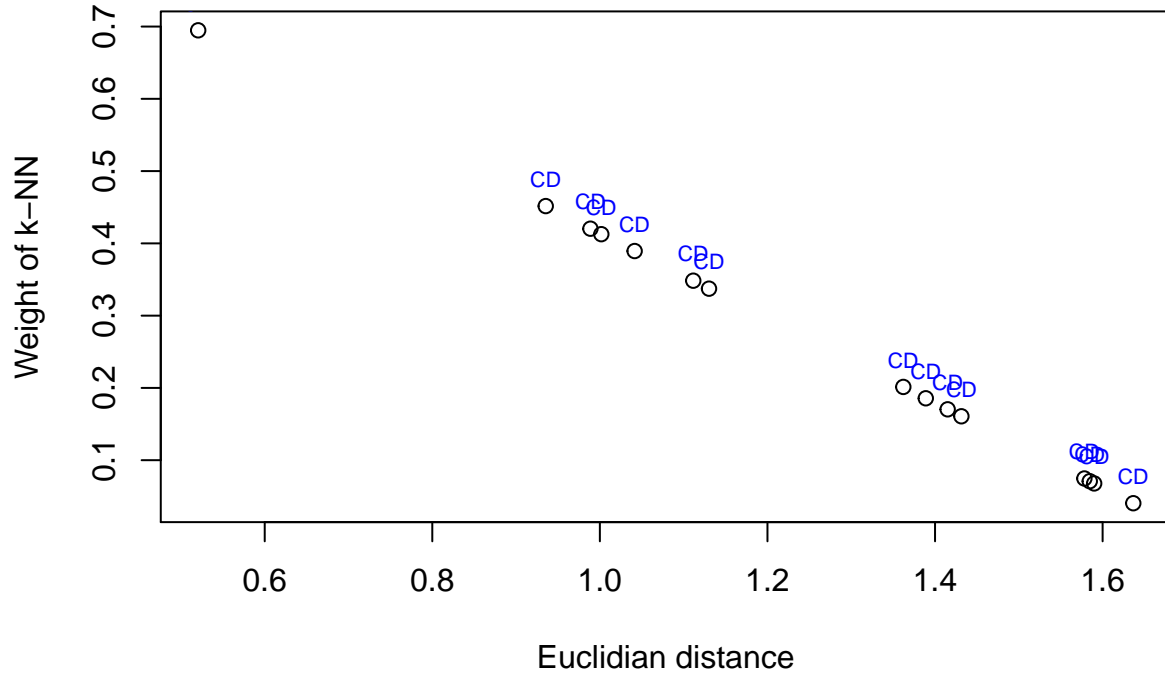
Map of best fitted reference sample



Best fitted reference sample:

- Site: Dem. Rep. Congo, Rumangabo
- Country: CD
- Region: Central Africa
- CITES: Appendix I
- Lat: -1.2
- Lon: 29.21

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
29.21	-1.20	Dem. Rep. Congo, Rumangabo	-19.5	9.3	16.7	-20.7	2.4
21.93	-1.76	Dem. Rep. Congo, Rumangabo	-17.4	9.8	17.6	-16.7	3.5
29.21	-1.20	Dem. Rep. Congo, Rumangabo	-19.1	11.4	17.1	-15.4	2.7
29.21	-1.20	Dem. Rep. Congo, Rumangabo	-19.4	8.2	17.6	-25.6	3.0
29.29	0.29	Dem. Rep. Congo, Beni terr	-19.6	8.9	19.0	-21.4	3.4
29.29	0.29	Dem. Rep. Congo, Beni	-18.0	9.4	16.9	-22.6	5.3
29.21	-1.20	Dem. Rep. Congo, Rumangabo	-19.1	8.5	16.5	-28.6	2.8
29.09	3.40	Dem. Rep. Congo, Gangala na Bodio	-20.5	9.1	17.5	-23.1	5.5
30.26	1.23	Dem. Rep. Congo, Kasenyi	-19.6	9.2	16.0	-30.5	3.9
29.21	-1.20	Dem. Rep. Congo, Rumangabo	-18.2	8.4	19.2	-25.1	4.3
28.80	-2.24	Dem. Rep. Congo, Kivu	-18.8	9.8	20.2	-20.6	3.3
29.21	-1.20	Dem. Rep. Congo, Rumangabo	-18.6	8.5	17.7	-34.4	3.8
29.20	-0.30	Dem. Rep. Congo, Albertpark	-18.5	11.2	19.3	-29.6	3.6
29.21	-1.20	Dem. Rep. Congo, Rumangabo	-18.6	12.7	17.0	-20.1	3.5
28.50	-2.30	Dem. Rep. Congo, Bukavu	-21.5	8.6	17.4	-27.3	1.2

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

“0.81318, 0.77999, 0.62087, 0.37659, 0.33140, 0.33140, 0.28978, 0.27030, 0.21718, 0.15831, 0.01202, 0.00226, 0.00134, 0.00093, 0.00014”

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**”