Contributions to the isotopic fingerprint of Tenerife wine – natural or anthropogenic?

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We present Sr isotope fingerprints of Tenerife (Canary Islands) wines and soil from their registered Denominacion de Origin's (DO's). The isotopically juvenile nature of Tenerife rocks supports a hypothesis that all biological material grown on Tenerife should be distinct in terms of Sr isotopes, and especially so from the radiogenic Iberian Peninsula. Pilot data largely support this view, yet we also observe clear evidence for an isotopically evolved component in some Tenerife wines.

The Canaries are adjacent to the most important source of atmospheric dust on Earth, the Sahara Desert, which on average is composed of radiogenic sources of Sr. Along with contributions to the terroir from (principally) Moroccan dust, we also consider the role of seaspray in the Marine Boundary Layer. The unique geography of the Canary Islands causes large variations in these contributions over relatively small areas, and may help to rationalise the evolved component we have detected. The data, however, does not follow clear patterns defined by dust or seawater modification of the Sr isotope signature. Given that the Sr isotope system has been proven as a robust provenance tool from soil to grape to wine, we must consider mixing of Tenerife wines with products sourced from the Peninsular.

These findings demonstrate the connection between the island of Tenerife and its products, which promises the construction of a detailed catalogue that can protect consumer confidence and, by extension, the economic resilience of Tenerife.