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<sup>87</sup>Sr/<sup>86</sup>Sr isotopes in grapes of different cultivars: a geochemical tool for geographic traceability of agriculture products

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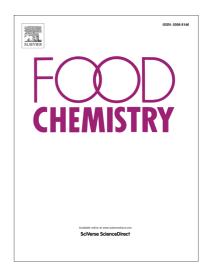
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### ACCEPTED MANUSCRIPT

# <sup>87</sup>Sr/<sup>86</sup>Sr isotopes in grapes of different cultivars: a geochemical tool for geographic traceability of agriculture products

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#### **Highlights**

- 87Sr/86Sr in fresh grapes from different genotype vines (cultivar)
- $-\ ^{87}$ Sr/ $^{86}$ Sr differences between white and red grapes and among harvest years
- 87Sr/86Sr in bioavailable fraction of soils, soils, and rocks beneath vineyards of production
- Geologic heritage in food stuff as a fingerprint for geographic traceability

#### **Abstract**

<sup>87</sup>Sr/<sup>86</sup>Sr was determined on fresh red and white grapes, soils and rocks from three selected vineyards to verify the isotopic relationships between the fruit of the vine and geologic substrata of vineyards. <sup>87</sup>Sr/<sup>86</sup>Sr were determined on sampled grapes of four different harvest years and different grape varieties, on bioavailable fraction of soils, on whole soils, and on bedrocks from the geo-pedological substratum of the vineyards. The vineyards chosen for the experimental works belong to an organic farming winery and thus cultivation procedures were strictly controlled.

Grapes were sampled during the harvests of four different but consecutive years with <sup>87</sup>Sr/<sup>86</sup>Sr that does not change reflecting the values of the soil bioavailable fraction. No variations among grapes from different vine cultivars were observed. A strict isotope relationship with soil bioavailable fraction was observed. These findings demonstrate the reliability of <sup>87</sup>Sr/<sup>86</sup>Sr, even at a very small scale, for food products geographic origin assessment.

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