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Oxygen isotope enrichment in rice (*Oryza sativa* L.) grain organic matter captures signature of relative humidity

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Highlights:

- Relative humidity observed to control the oxygen isotopic variation in the rice grain organic matter.
- Study reports progressive ^{18}O-enrichment of water in the culms and leaves, while intermediate enrichment observed in the grains.
- Predictions from mechanistic-model were in agreement with the experimental observations.
- The findings provide insights into the rice plant's oxygen isotope systematics.
- Study lays the foundation for future applications of the stable isotope technique to study rice-environment interactions.

Abstract