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# Radiocarbon Dating Modern Wild Rice (*Zizania*) Caryopses: An Exploration of Ancient Carbon Signatures

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## Résumé

As part of a larger study of radiocarbon dating in Minnesota, modern wild rice (*Zizania*) was collected, processed, and radiocarbon dated. The freshwater reservoir effect (FRE) is well known in northern Europe and parts of North America. Suspected sources of ancient carbon in food residue are usually the water if the geological substrate erodes, introducing ancient carbon, hard water containing carbonates, and animals. Modern fish and land animals living in and around water and/or eating aquatic resources, date several to many hundreds of years old. Questioning the input of carbon from plants, however, challenges fundamental assumptions of radiocarbon dating. Recent research concerning carbon stored in grass phytoliths has shown that at least some grasses sequester ancient carbon in their phytoliths. Our questions for radiocarbon dating revolve around the plants and animals cooked in vessels, as well as those carbonized during daily life and recovered at archaeological sites. As part of the quest to understand ancient carbon input to cooking vessels, we dated modern wild rice caryopses. Our experiments include dating raw and boiled wild rice caryopses, then dating them using traditional pre-treatment methods (acid-base-acid), then with the addition of a non-polar solvent chemical pretreatment. In addition, we experiment with cooking wild rice, then dating the cooked caryopses using both the traditional ABA and non-polar solvent chemical pretreatments. Direct comparisons are made between these results, which indicate that, indeed, wild rice caryopses produced dates "too old" when compared with their harvest year.

**Mots-Clés:** radiocarbon dating, dating grasses, cooking

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