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RELIABILITY OF AMS ^{14}C DATES OF MOSS TEMPER PRESERVED IN NEOLITHIC POTTERY FROM THE SCHELDT RIVER VALLEY (BELGIUM)

Radiocarbon

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ABSTRACT

Direct dates of pottery obtained from food crusts or other organic residues on the vessel surfaces can be affected by a reservoir effect and/or an old wood effect and therefore be unreliable. Hence, there is a need for alternative ways to directly date pottery. Moss is used as temper by several cultural groups of the late 6th to early 4th millennium cal BC in northwestern Europe. After the pottery is fired, charred moss remains are often preserved in the clay, so that relatively short-lived plant material with a direct chronological link to the pottery and human occupation is available for radiocarbon (^{14}C) dating. In this study, charred moss temper is extracted for accelerator mass spectrometry (AMS) ^{14}C dating from pottery of the Swifterbant Culture and Spiere group in the Scheldt river valley (Belgium). The moss dates are then compared to reference dates of organic macro-remains from the same sites and food crust dates with or without a reservoir effect of the same pottery. Eleven out of 13 moss dates are in line with the expected pottery age. The paired dates of moss temper and food crusts from the same potsherds confirm a freshwater reservoir effect (FRE) for the latter. We conclude that moss temper has great potential as a sample material for direct pottery dating. However, more research on the extraction and pretreatment of moss temper as well as on the reliability of moss dates is necessary in the future.

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