

Phytolith and Rice

—New progress on Rice Phytolith and Neolithic Rice

Agriculture Study in China

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Rice, as staple crop, is crucial to the formation of civilization of China and makes great contribution to the development of worldwide civilizations. However, there is still controversy regarding how to effectively identify early rice remains in terms of the poor preservation of macroplant fossils. Phytoliths have been a useful tool in exploring the origin and development of crops.

Here, we will introduce the new progress of phytolith research on modern paddy soil and archaeological applications in China.

Modern phytolith study. 170 surface soil samples from modern rice paddy were studied to establish the criterion for discriminating between wild and domesticated rice using bulliform phytoliths, and for differentiating the wild rice field and domesticated rice paddy by phytolith assemblages.

Archaeological progress. 1) By systematic phytolith study at key archaeological sites in Lower Yangtze region, we suggested that rice domestication was begun at the beginning of the Holocene, clarified the spatial and temporal pattern of the early rice domestication, reconstructed the process of rice domestication. 2) Based on analysis of macro-plant remains and phytoliths from 10 sites of Nanyang basin shone light on the primary development of early agriculture during 7000–5000 cal BP in middle Han River valley and mixed farming had formed in this region at least since then and continued in the following periods. 3) Based on systematic phytolith analysis from Guijiabao in the south part of the Zang-Yi Corridor, the results showed that rice should be considered to have been introduced into this region together with foxtail millet and broomcorn millet as a package around 5000 cal BP or even earlier, instead of from the two waves of dispersal from Northwest China and the middle Yangtze Valley, respectively.