

IDENTIFYING THE WATER REGIME AND ITS ASSOCIATION WITH CROP HIERARCHIES DURING 1850-1750 CAL BC IN THE XINZHAI SITE, CHINA

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A vital factor in the rise of urbanization is the development of a complex farming system employing labor-intensive irrigation. It is, therefore, of great significance to probe the water regime in the Xinzhai period (1850-1750 cal BC), a key period pursuing the emergence of early urbanization in China. To recover the water management in the Xinzhai period, correspondence analyses based on phytolith ecological categories and ratio analyses of Sensitive to Fixed morphotypes of 59 phytolith sediment samples from the Xinzhai site were performed. They clearly show that rice and millet were grown in different ecological settings with possibly intensive rice farming under an irrigation system and a rainfed millet farming system. Meanwhile, a regional comparative-research of phytolith and macro-remains suggests that rice was more concentrated in central settlements and the aristocratic residential area in the Xinzhai site. Since there was a rice-favorable warm and wet climate during the Xinzhai period, we argue that the uneven distribution of rice can be explained by cultural factors instead of climatic factors. Due to the intensive labor inputs, irrigated rice has been chosen from ordinary ingredients into luxury food for the wealthy and powerful while rainfed millet was more for calorific needs probably as a major staple. More than that, the practice of irrigation likely had a prolonged impact on the agricultural pattern and the social complexity in the subsequent Erlitou (1750-1550 cal BC) and Shang (1550-1046 cal BC) periods. This research proves archaeobotanical evidence can enable us to evaluate how certain crops became powerfully associated with social-cultural distinction under an irrigated system and also how it possibly contributed to the social complexity.

Keywords

Xinzhai period, Phytolith analysis, Macro-botanical remains, Crop water regime, Crop hierarchy

Note/comment