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The palaeoenvironmental reconstruction of the Terramara Santa Rosa di Poviglio from the Bronze Age to the XVI century AD (SUCCESSO-TERRA project)

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Introduction

Santa Rosa di Poviglio is an archaeological site that has been investigated since more than 30 years under the direction of M. Cremaschi, and recently is at the centre of the national-funded project SUCCESSO-TERRA *Human societies, climate-environment changes and resource exploitation/ sustainability in the Po Plain at the Mid-Holocene times: the Terramara*. In this project, the environmental and land-use changes have been investigated to understand their relationships over the last millennia. The approach is especially based on on-site palynological analyses (Mercuri 2014) integrated with the study of plant macroremains (seeds/fruits, charcoals). First analyses were focused on obtaining detailed comprehension of the adaptive strategies of the Terramare people during the Late Holocene. Santa Rosa di Poviglio was a terramara during the Middle/Recent Bronze ages (1550–1170 BC; Cremaschi et al. 2016). The interdisciplinary geoarchaeological and archaeobotanical research wants now to reconstruct environmental changes that occurred from the onset of the terramara to the following phases, until the XVI century AD, taking this site as emblematic of the land transformations of the southern-central part of the Po Plain.

Materials and Methods

Terramare are archaeological vestiges of banked and moated villages that developed in the central sector of Po River alluvial plain during the Middle and Late Holocene.

Pollen samples were collected from trenches excavated within the moat and ditch surrounding the Santa Rosa di Poviglio site, and connecting the small village to the large village of the Bronze age. A total of 57 samples (from the oldest samples: 31 from VP/VG, 10 from VP/VGII, 16 from VP/VGIII) were taken during the excavation campaigns of 2013 and 2015. Chronology was based on radiocarbon dates (Cremaschi et al. 2016), pottery and stratigraphical correlations.

Pollen extraction included sieving and heavy liquid floatation to concentrate pollen and non pollen palynomorphs.

Results and Discussion

Pollen was common and well preserved. Depositional conditions were especially suitable for good preservation of sediments and their palynological content in the VP/VG section. Pollen concentration was ~80,000 in VP/VG, and ~40,000 in the other two sequences. The reworked pollen was quite common and marked the presence of alluvial deposits.

The forest cover was low and includes oak wood trees like deciduous *Quercus*, *Carpinus betulus* and *Corylus*; the mean value of woody plants decreases from ~50% in VP/VG to ~15% in the following phases showing that the landscape was open. Trees, including fruit trees, and cereals were significant during the Bronze age while their importance decreased in the following phases. A set of anthropogenic pollen indicators, common in the spectra (and in the spectra from other Italian archaeological sites; Mercuri et al. 2013), was considered especially useful to reconstruct agricultural dynamics besides the distribution of wild vegetation (wood and wetland plant associations).

Conclusions

The palynological research showed a transformation in flora composition and plant communities, suggesting a dynamic agricultural economy. The latter was possibly practiced on the basis of wood management and crop fields. At the top of the VP/VG sequence of Santa Rosa di Poviglio, in correspondence with the drying of the moat system, a dramatic decrease of woods may had a twofold causation: increased aridity (natural factor) and intensive land-use (anthropic factor) might have played a fairly synchronous action on vegetation. After the Bronze age phase, the agro-system rapidly decreased or changed typology. In fact, pasturelands spread with much land devoted to grazing. Also the cultivation of hemp is recorded, and a quite expansion of woods during the most recent phases documented by pollen (Grant: PRIN2015 8KBLNB).

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