

Plants for life and death: evidence of use of plant resources in funerary activities of shellmound builders through the anthracological analysis of Jabuticabeira-II site (Santa Catarina, Brazil)

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Summary: This work presents the anthracological analysis of a funerary area from a shellmound site dated from 2921-2357 to 1864-1534 cal years BP. This study is based on the premise that exploitation of land resources represented a significant role to the development of several quotidian activities; it aims to investigate the importance of plant resources in the sambaqui moundbuilders lifeway. Jabuticabeira-II site was situated in a restinga environment and the Atlantic Forest was also part of their resources catchment area. Evidence of selection of some elements related to the funerary ritual is presented. Seeds and palm fruits are especially related to features associated to funerary ritual, corroborating the hypotheses of mortuary offerings or feasts. A new hypothesis that is being investigated is here presented: that the sambaqui people might have themselves contributed to this landscape construction.

Keywords: shellmound, charcoal, formation processes, ritual, Brazil

INTRODUCTION

Shellmound builders with a relatively complex sociocultural organization occupied the Brazilian coast during the Holocene. They are considered efficient and well succeeded fisher-gatherers, highly adapted to the coastal environment. The archaeological mounds usually have a complex stratigraphy, including alternating sequences of shell deposits and thin dark layers composed by burials, hearths and frequently postholes marking the occupation surfaces (Gaspar, 2000).

The study area is situated on the Jaguaruna region, Santa Catarina State, Brazil, at ca. 1 km from the southwestern margins of Garopaba do Sul Lagoon and at ca. 6 km from the sea (22J 699489/6835694 UTM). The climate is temperate sub-hot, with winter mean temperatures over 15 °C and no dry season. Mean annual temperature is 20 °C and mean precipitation is 1400 mm/yr. Although the natural vegetation is almost absent from this region nowadays, the site is situated in the phytosociological domain of the *restinga* ecosystem, typical of the Brazilian coast, and the Atlantic Forest is situated inland, in more elevated topographical areas.

Sambaqui Jabuticabeira-II attains 400 x 150 m, with up to 8 m in height. The site is formed by numerous alternated layers of funerary and filling deposits. The later are characterized by small mounds of shells and sand sediments virtually devoid of cultural archaeological remains, disposed above the funerary structures. Funerary layers are extremely rich in hearth features, charcoal remains, artifacts and faunal remains, especially fish bones (Fish *et al.*, 2000).

MATERIAL AND METHODS

Charcoal samples were collected from a 4 m profile,

the greater part of which is composed by filling layers that cover a funerary deposit about 60 cm-thick. The sediments of the filling deposits were collected by artificial levels 10 cm-thick; the funerary area was excavated according to the different archaeological features. Charcoal remains were recovered by flotation in the field. Charcoal pieces were manually broken exposing the fundamental wood anatomical sections and examined under a reflected light brightfield/darkfield microscope. Systematic determination was achieved using Atlas Brasil software, a reference collection, and the specialized literature. Data interpretation was based on the construction of charcoal diagrams and the application of multivariate analysis.

RESULTS AND DISCUSSION

All charcoal fragments over 4 mm were analyzed, attaining almost 4000 analyzed pieces. The number of *taxa* varies between 30 and 50 per sample, which represents a high floristic diversity, comparable to that of phytosociological studies (e.g. some recent phytosociological studies from different Brazilian vegetation types identified, in areas of 1-1.5 ha 592 to 924 specimens attributed to 31-54 taxa —Peixoto *et al.*, 2005; Scherer *et al.*, 2005).

The site was clearly situated in the *restinga* environment, corroborating previous studies, which indicated that these moundbuilders established themselves in this vegetation domain (Scheel-Ybert, 2000). However, the high proportion of Atlantic Forest taxa suggests that this dense ombrophilous forest of high biodiversity was also part of their resources catchment area. Palaeoenvironmental indicators are similar all along the charcoal diagram, suggesting that no significant environmental change took place during the occupation period. Initially, the relative vegetation stability during the late Holocene had been associated to the edaphic character of these vegetation types (Scheel-Ybert, 2000).

More recently, however, a new hypothesis is being investigated. The strong predominance of Myrtaceae obtained in most of the anthracological studies of shellmound sites (Scheel-Ybert, 2000; Scheel-Ybert and Dias, 2007) suggests that the *sambaqui* people might have contributed to this landscape configuration, especially handling Myrtaceae species (Bianchini, 2008).

Anthracological analysis disclosed a clear opposition between the “filling” and the “funerary” layers. The quantity of charcoal remains is significantly higher in funerary layers, as well as the taxonomic diversity, indicating the high intensity and the “long durée” of hearths in mortuary rituals. Indeed, the filling deposits presented *ca.* 700 charcoal pieces/m³, while in the funerary area there were *ca.* 2700 pieces/m³. Moreover, food remains are completely absent from the filling layers, while they are particularly abundant in the funerary samples (Fig. 1), attaining in some cases more than 30% of the analyzed remains. Arecaceae, Annonaceae, Myrtaceae, and Cucurbitaceae fruits or seeds were identified, all of them edible plants. Their abundance in the mortuary layers, associated to specific features like hearths, corroborates the hypothesis based on zooarchaeological studies, which suggests the practice of food offerings and/or ritualistic or feasting ceremonies (Klökler, 2008).

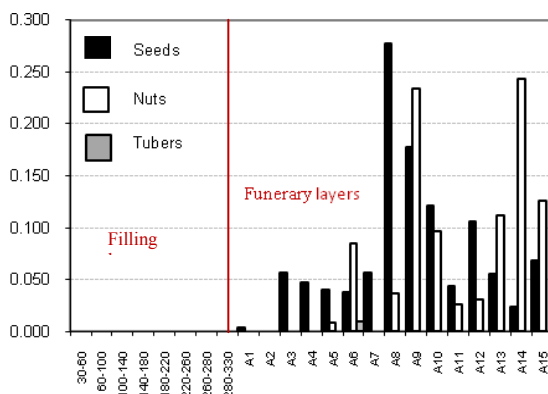


FIGURE 1. Ratios of seeds, palm nuts and tubers: charcoal in the different levels of the Jabuticabeira-II site.

CONCLUSION

Palaeoenvironmental and archaeobotanical results obtained so far indicate that Jabuticabeira-II moundbuilders inhabited the *restinga* environment for a very long time, exploiting their surroundings for domestic, utilitarian, and ritualistic wood and food.

The clear opposition between the “filling” and the “funerary” layers detected by anthracological analysis, contributed to reinforce the hypothesis that the formation processes of Jabuticabeira-II site are related to cultural activities of inhumation of the dead (DeBlasis *et al.*, 2007).

Anthracological analysis of funerary layers revealed a varied set of seeds, many of them belonging to botanical groups that include several fruits thoroughly used in human diet. Their presence in mortuary layers suggests that they could be set as offerings, or consumed during the funerals in ritualistic or feasting ceremonies. This abundance indicates that they were important component of funerary rituals of the Jabuticabeira-II group.

Although presenting a relative stability, this landscape was probably deeply used and managed by these people. Virtually all of the daily and ritual activities, involved, in one way or another, practices of burning, selection, cutting, collecting, and/or transport of plants. Therefore, the Jabuticabeira-II mound builders, along a thousand years of continuous occupation, certainly left their marks in the vegetation.

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