

Chapter 3

Palynological Evidence From Sediments of a Coastal Estuary in Lagos, Southern Nigeria


Linus Bashie Ajikah

University of the Witwatersrand, South Africa

Orijemie Emuobosa Akpo


University of Ibadan, Nigeria

Olugbenga Shadrak Alebiosu

 <https://orcid.org/0000-0001-5216-2069>

University of Ibadan, Nigeria

Ethel Phiri

 <https://orcid.org/0000-0003-1473-2045>

Stellenbosch University, South Africa

Marion Bamford

University of the Witwatersrand, South Africa

ABSTRACT

The environmental history of parts of the Lagos lagoon during the Late Holocene was reconstructed based on the palynological analyses of a 51cm sediment core retrieved from Itokin, Lagos, Nigeria. Three phases (I-III) of environmental changes, beginning from 1480 ± 30 BP, were recognized. The inferred environmental changes were characterized by the mangrove swamp forests, freshwater swamp forests, and open vegetation in varied proportions and accompanied by conditions that fluctuated

DOI: 10.4018/978-1-6684-7801-1.ch003

between wet and dry climates. The pollen evidence reveals that the Itokin landscape has remained open since the last 1500 yrs BP, dominated by open vegetation and freshwater swamp elements. The mangrove swamp forest decreased at some point but recovered. In contrast, the rainforest remained low in occurrence throughout the core. The drivers of these environmental changes and their ecological implications are highlighted.

1.0 INTRODUCTION

The Late Holocene, 4500 yrs BP to the Present, in West Africa as well as other parts of the tropics, was characterised by fluctuating environmental conditions namely (i) the fragmentation of rainforest ecosystems and the increase in secondary forests (Sowunmi 1981 a & b); (ii) decline in the freshwater swamp and mangrove swamp forests vis-à-vis the emergence of coastal savannas (Sowunmi, 2004; Orijemie and Sowunmi, 2014) and (iii) the drastic fall in sea and lake levels (Shanahan et al., 2006; Tossou et al., 2008). These environmental changes not only affected vegetation and hydrological systems but also impacted human societies and cultural transformations that contributed to the collapse and emergence of complex societies, and their food production systems in particular (Kay et al., 2019). West Africa is regarded as one of the domestication and agricultural innovation centres during the Holocene where crops, including *Dioscorea* spp. (yams), *Canarium schweinfurthii* (African olive), *Elaeisguineensis* (oil palm), *Pennisetum glaucum* (pearl millet) and *Oryza glaberrima* (African rice), were first managed and subsequently cultivated (D'Andrea et al., 2001; Kahlheber et al., 2009; Oas et al., 2015; Chai and D'Andrea, 2017; Champion and Fuller 2018). In the Late Holocene and onwards, environmental dynamics and technological innovations contributed to the emergence and eventual dominance of agriculture as a food production strategy, particularly in the savanna regions (Oas et al., 2015). In contrast, the impact of the early centres of agriculture and civilization on the natural environment in some parts of West Africa, especially the rainforest zone, is scarce. Although palynological and environmental archaeological studies have been conducted in the Badagry area of Lagos State (Allsworth-Jones and Wesler, 1998; Alabi, 2002; Sowunmi, 2004; Orijemie, 2013, 2014; Orijemie and Sowunmi, 2014), sufficient attention has not been paid to the ways by which humans modified the landscape whilst engaging in these subsistence practices in the lagoon areas of Lagos, Nigeria. In other words, there is a dearth of evidence on the outcome of such transformations within an environmental context in the coastal areas of the Lagoon areas of Lagos. This study aims to document the environmental history of the Lagos Lagoon, southwestern Nigeria within the last 1500 yrs BP using sedimentary and palynological evidence and employing the data to decipher human-landscape

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