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ORIGINAL ARTICLE

# Kitala Ware: A New Early Iron Age Pottery Group from the Lower Congo Region in Central Africa

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**Abstract** This article presents the first detailed account of a previously unknown Early Iron Age pottery group from the Kongo Central Province in the Democratic Republic of Congo. The ceramic group is named Kitala ware, after the site where it was first discovered, and excavated in 2014 and 2015. Dated between cal AD 230 and 524 at Kitala, the ware is also documented as surface finds from six other sites south of the Congo River. Its chronology partly overlaps with the previously known Kay Ladio ware dated between cal AD 30 and 475. Both Early Iron Age (EIA) pottery groups share many features and are distinct from Ngovo ware, the province's earliest pottery group which preceded the arrival of iron metallurgy and dates between 420 cal BC and cal AD 130. The users of Kitala ware had iron metallurgy and lived in a natural environment of open deciduous woods with access to tree species characteristic of wooded savannas, such as *Bridelia* spp., and gallery forests, such as *Elaeis guineensis*. The clay properties, shapes, and decoration patterns of Kitala vessels presented in this article indicate that this ceramic group derived from Kay Ladio ware. While it is unrelated to EIA pottery traditions known in the Atlantic Coast region of the Congo Republic to the north, it does share specific features with certain EIA pottery types in the vicinity of Kinshasa. This article shows that during the EIA, the Lower Congo region of Central Africa had more regional variation in ceramic production than previously known.

**Résumé** Cet article présente la première description détaillée d'un groupe de poterie encore inconnu provenant de la province du Kongo Central de la République Démocratique du Congo, la poterie Kitala, du site éponyme découvert en 2014 et fouillé en 2014 et 2015. Daté entre calAD 230 et 524, et découvert en surface sur six autres sites au sud du fleuve Congo, sa chronologie recouvre en partie cette de la poterie Kay Ladio située entre calAD 30 et 475. Ces deux groupes de l'Age du Fer Ancien (AFA) possèdent de nombreux traits communs et sont clairement distincts du Ngovo qui représente le plus vieux groupe avec poterie, avant la diffusion de la métallurgie du fer, daté entre 420 calBC et calAD 130. Les utilisateurs de la poterie Kitala produisaient le fer et vivaient dans un environnement de forêts décidues ouvertes avec un accès à des bois caractéristiques de savanes arborées, comme le *Bridelia* spp., et de galeries forestières comme l'*Elaeis guineensis*. Une étude détaillée des argiles, des formes et des décors des récipients présentée dans cet article, montre que la poterie Kitala dérive probablement de la poterie Kay Ladio. Alors que le Kitala ne possède pas de points communs avec les poteries Age du Fer Ancien connues sur le littoral Atlantique de la République du Congo vers le nord, il partage certains attributs avec des types de poterie Age du Fer Ancien de la région de Kinshasa. Au cours de l'Age du Fer Ancien, la

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région du Bas-Congo de l'Afrique centrale possédait une plus grande diversité de types de poteries qu'estimé auparavant.

**Keywords** Democratic Republic of Congo · West-Central Africa · Kongo Central province · Early Iron Age · Kitala ware · Pottery analysis

## Introduction

After several decades of stagnation, the archaeology of Central Africa's Lower Congo region has recently obtained a boost through several research programs pertaining to the history of the Kongo Kingdom, such as the Mbanza Kongo UNESCO World Heritage Project (Clist et al. 2015a; Jesus et al. 2016), Geoffroy Heimlich's rock art project (Heimlich 2014, 2016; Heimlich et al. 2013, 2018), and the KongoKing project (Clist et al. 2015b, c, 2018a). Although these recent research efforts have mainly contributed to a better understanding of the region's Later Iron Age (LIA), they have also generated new insights into the Early Iron Age (EIA) and the pre-Iron Age settlement history of Central Africa. The KongoKing project offers a good example. Although it focused on the LIA of the DRC's Lower Congo Province and Northern Angola between cal AD 1200 and 1800, the project has also collected new EIA data in an attempt to establish a long-term chrono-cultural sequence that bridges the existing gap between EIA and LIA. Thanks to the 53 new $^{14}C$ dates obtained through the KongoKing project, the region's chronology has become much more precise, although there are only three dates available for the period between cal AD 340–730 (Lv-168) and cal AD 1275–1390 (Poz-80292) (Clist 2018). The Bu, Kindu, and Mantsetsi sites in the Kongo Central Province of the Democratic Republic of the Congo (DRC) yielded, both north and south of the Congo River, new evidence of the earlier documented EIA "Kay Ladio" pottery, with a redefined time range of cal AD 30–475 (Clist et al. 2019a). However, KongoKing research has also led to the discovery of new EIA pottery groups, such as the Kitala ware (cal AD 230–524), the main focus of this article. Slightly younger than Kay Ladio ware, the Kitala pottery group is found only south of the Congo River. Both wares, however, overlap during the mid-third through late fifth century AD, showing that the Lower Congo region of Central Africa had more regional variation in ceramic production during the EIA than previously known (Clist et al. 2018b).

Within the Kongo Central Province of the DRC, formerly called "Bas-Congo," Ngovo ware is the oldest pottery group, dated between about 420 cal BC and cal AD 130 (Clist et al. 2018b, p. 46; de Maret 1986). All its remains have been found on the south bank of the Congo River and further south toward the border with the Angola Republic, in open-air sites, such as Sakuzi, as well as in caves and rockshelters, such as Dimba (Clist 1982, p. 134–146; de Maret 1986). According to the current state of knowledge, the producers of Ngovo ware belonged to the oldest sedentary communities of the Kongo Central Province. They settled there before the advent of iron metallurgy. Besides pottery, their technology included polished stone axes and hoes. Axes identical to those of the Kongo Central Province have been surface-collected in the vicinity of Mbanza Kongo in northern Angola (Clist and Lanfranchi 1992, p. 246–248; De Matos et al. 2013; Ervedosa 1980, p. 166–170). Although these tools were not found in association with Ngovo ware, it is likely that this ceramic group extended south of the present-day Angola-Congo border (Clist et al. 2018b, p. 45).

The first pottery group associated with iron metallurgy in Kongo Central Province is the Kay Ladio ware (cal AD 30–475), which is stylistically distinct from Ngovo ware (Clist et al. 2018b, p. 49–50; Clist et al. 2019a; de Maret 1990). Its producers transformed the iron ores near their settlements into iron tools as documented, at the Kindu site, but they continued to use stone hoes and polished stone axes, possibly only for symbolic purposes. Unlike Ngovo ware found in open-air sites, caves and rockshelters, Kay Ladio ware has been uncovered only in open-air sites. Moreover, the latter is much more widespread than Ngovo ware. Kay Ladio ware has not only been found south of the Congo River but also north of the Democratic Republic of Congo (Fig. 1; Clist 1982, p. 147–158; Clist et al. 2018b, p. 48; Dupré and Pinçon 1997, p. 42–43). Given the recent discovery of this type of pottery on several sites around Nduizi (formerly called Kongo dia Vanga) at 6–12 km north of the Angola-Congo border (Clist et al. 2019b), Kay Ladio ware possibly also extends into northern Angola (Fig. 1). An indirect indication for the extension of Kay Ladio ware into present-day Angola is the characteristic pottery from the Cabolombo site, south of Luanda (Ervedosa 1980; Domingos 2009; Valdeyron and Domingos 2012). Known as Cabolombo pottery, this ware is very similar to Kay Ladio in terms of shapes and

decoration patterns; and its time range (cal AD 128–428), based on three $^{14}C$ dates, falls within that of Kay Ladio (Clist et al. 2018b, p. 46–47). With regard to the possible southward expansion of Kay Ladio ware, it is striking that this distinctive pottery group has never been found further east. It is absent from the two archaeologically best-documented areas in the eastern part of the Kongo Central Province—the basin of the Inkisi River where the KongoKing project team carried out extensive prospections and excavations between 2012 and 2015 (Clist et al. 2018a), and the wider Kinshasa region (Clist et al. 2018b, p. 49–50). Our recent fieldwork in the vicinity of Muanda also did not lead to any finds of Kay Ladio ware, as far as we can tell from the study of the materials (Clist et al. 2019b).

These two ancient ceramic groups - Ngovo and Kay Ladio - are chronologically disparate and are never found in the same pits. South of the Congo River, only two hilltops have yielded successive Ngovo and Kay Ladio settlements: Mbanza 2 and Sakuzi. Associated surface finds of both groups occur at Kay Ladio, Kibula, Kondo, and Mabulu, all situated in the close vicinity of Sakuzi, as well as at Mongo (Fig. 1). It is against this background that we present here a new EIA pottery group from the Kongo Central Province–the Kitala ware (Clist et al. 2018b, p. 50).

## Kitala Site

In this section, we describe the archaeological site where Kitala ware was first discovered in terms of its geographical, geological, and paleo-environmental setting, and give a short account of the excavations carried at the site since 2014. This is followed by the description of the stratigraphy, chronology, and the formal properties of Kitala ware. The Kitala site (S05° 33′ 03″; E14° 52′ 04″), situated to the north of the modern village of Mbanza Mpangu, is located on an elongated and heavily eroded hill with a fairly large summit area culminating at 468 m above sea level. A GIS-based topographic map of the area, of which Fig. 2 is an extract, was developed in close collaboration with the Geography Department of Ghent University. It was linked to different layers of

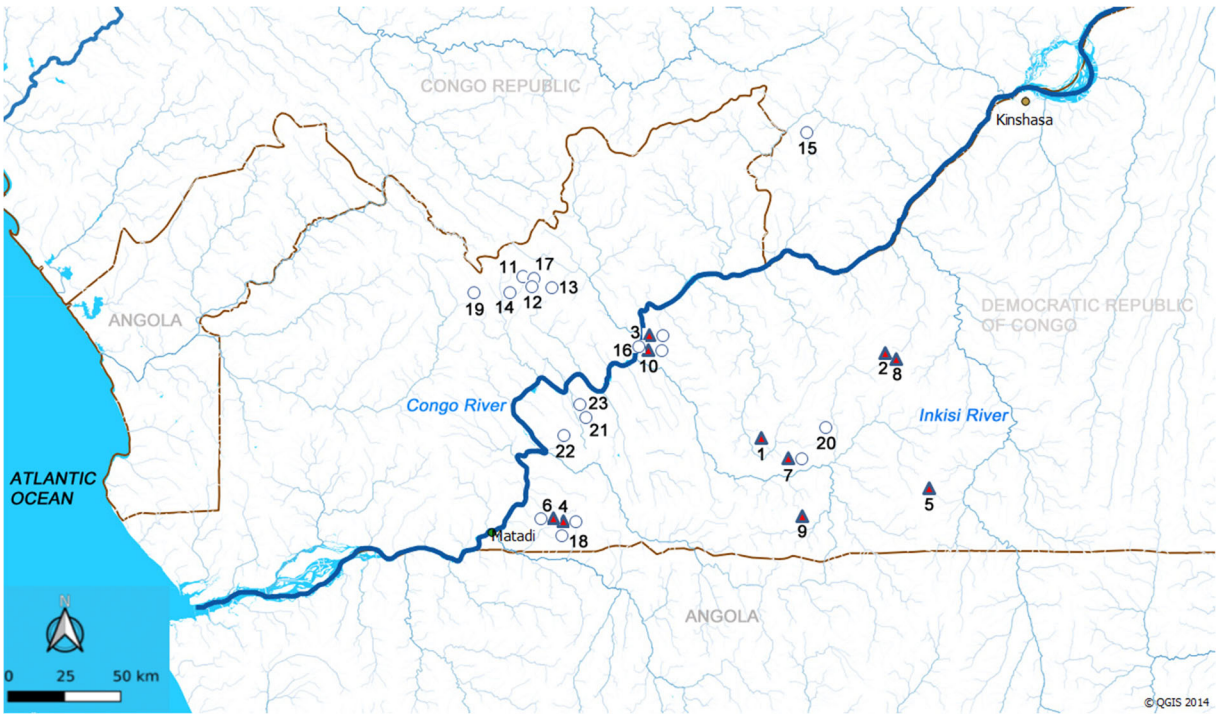


**Fig. 1** Neolithic and Early Iron Age sites in the Kongo Central province of the DRC, Ngovo (triangles) and Kay Ladio Groups (circles). Ngovo sites: Bangu (1), Dimba (2), Kay Ladio (3), Kimbala (4, aka Kongo dia Vanga), Kwimba (5), Mbanza 2 (6), Mongo (7), Ngovo (8), Ntadi Ntadi (9), Sakuzi (10). Kay Ladio sites: Kay Ladio & Kibula (3), Kimbala Solele (11), Kindu (12), Kinkenge (13), Kintadi les Lukuti (14), Nduizi (4, aka Kongo dia Vanga), Loukoko (15), Mabulu & Kondo (16), Mantsetsi (17), Mongo (7), Nguemba (18), Sakuzi (10), Sumbi (19), Tumba (20), Bu3 (21), Kazu1 (22), Kulu (23)

information, such as patterns of land use and the archaeological potential of hilltops based on an analysis of aerial and satellite photography (Vergaert 2014). This information guided our archaeological survey and subsequent excavations.

The geological substratum of the Kitala site is composed of Precambrian schist-limestone from the Lukunga array. Around Mbanza Mpangu and the Kitala site, the underground consists of limestones and various dolomites, generally clayey, with abundant calcschists and cherts (Delmoitie-Nicolaï et al. 1972). As shown in Fig. 2, the Bombe River cuts through the limestone massif, which is home to several narrow galleries used until today as temporary shelters for hunters. Alluvial deposits at the bottom of the valley are up to 800–1000 m in width and a thickness of up to 3 m. This alluvium explains the presence of large agricultural plots on both banks of the river (Fig. 2). Their soils are irrigated and enriched by the river's annual flood. Nowadays, the whole floodplain around Mbanza Mpangu is intensively exploited, and the villages are situated above the limit of the annual inundation of the rainy season. Its fertile land may also have attracted people during the Early Iron Age, as is indicated by the location of the ancient Kitala settlement in the floodplain, similar to the location of the modern villages.

The Kitala site is situated today in a natural environment of open deciduous woods with tree species that are characteristic of wooded savannah and gallery forest (Fig. 2). As shown by Hubau et al. (2018), based on a preliminary analysis of charcoal, the vegetation around Kitala was probably dominated by savannah species at the time of the EIA settlement. Moreover, the charcoal assemblage of EIA Kitala is strikingly less diverse in species than those analyzed for the EIA sites of Bu 3 and Kindu (Hubau et al. 2018, p. 29). This could reflect either a more selective harvest process or a natural environment that was poorer in species. One of the taxa abundantly present in the Kitala charcoal sample is *Bridelia* spp., which is a typical savannah tree (Compère 1970; Lebrun and Gilbert 1954). Today, several *Bridelia* species, such as *Bridelia micrantha* and *Bridelia ferruginea*, have an array of uses in medicine, building, cooking, and pigment-making in the Kongo Central Province (Latham 2004, p. 59–60). Other common taxa in the charcoal record, such as *Beilschmiedia* spp. and *Irvingia smithii*, were probably collected in gallery forests. The economic importance of those forests is apparent from

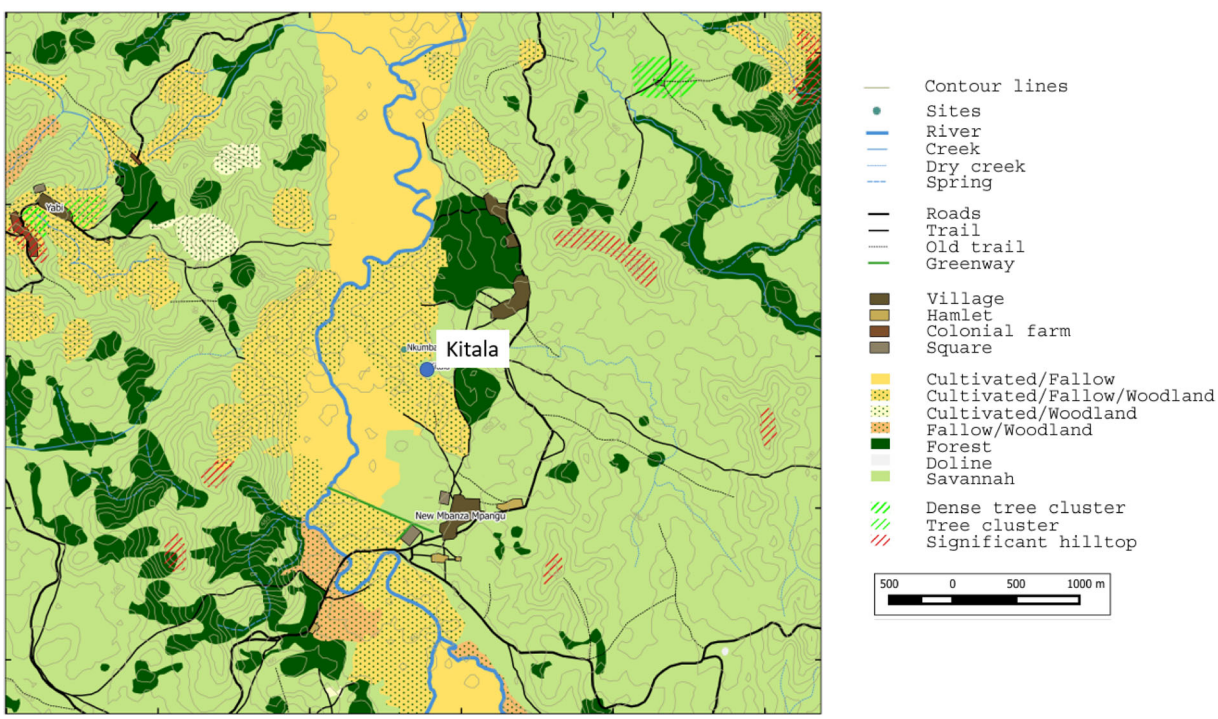


**Fig. 2** Land use around the Kitala site

the remarkable abundance of endocarp fragments of the oil palm (*Elaeis guineensis*) at Kitala.

## Excavations

In 2014, Igor Matonda and Els Cranshof, two former Ph.D. students of the KongoKing project, discovered the Kitala site while they conducted surveys in the vicinity of the modern village of Mbanza Mpangu in an attempt to locate the capital of the Kongo kingdom's former Mpangu province (Matonda et al. 2014, p. 59–60). They dug five trenches, four of 1 × 1 m (trenches 1–2 and 4–5), and one of 2 × 2 m (trench 3) in the area of the hilltop where they had found surface concentrations of pottery. In trenches 4 and 5, they hit a layer of gravel at 60 cm which turned out to be the sterile level. In trenches 1–3, they uncovered refuse pits containing large amounts of archaeological materials such as charcoal, charred palm nuts, pottery, and iron slag. In 2015, Els Cranshof and Igor Matonda further excavated Kitala, joined by Bernard Clist and Mandela Kaumba, another former Ph.D. student of the KongoKing project (Clist et al. 2018b, p. 50). This excavation spanned a surface of 9 $m^2$ spread over three trenches (2, 3, and 6). Two of the trench pits of the 2014 campaign were revisited and expanded by 4 $m^2$ (trench 2) and 1 $m^2$ (trench 3), while a new one (trench 6) of 4 $m^2$ was opened (Fig. 3). Both the excavations of 2014 and 2015 sampled a total area of 15 $m^2$ and led to the identification of three cultural components: Late Stone Age (LSA), EIA, and a tomb from historical times. This grave probably dates to the nineteenth–twentieth century. It was possibly part of a larger cemetery of the ancestors of the present-day villagers, although the memory of this site appears to have been lost. However, it could also be an isolated burial of a high social-status individual as reported for the Kongo people during the late nineteenth century (Decapmaker 1951, p. 126; Weeks 1914, p. 274–275).

## Stratigraphy

All the trenches have similar stratigraphic profiles. Below the very dark gray humus (5YR 3/1) (layer 1 in Fig. 4), a settlement level embedded in a wet dark reddish brown clayey sand (5YR 2.5/2) (layer 2 in Fig. 4) is situated ca. 20–30 cm depth, on top of a thick brownish yellow clayey sand level (10YR 6/8) (layer 3 in Fig. 4). Below layer 3, starting at around 80 cm, is gravel of heterogeneous module (layer 6 in Fig. 5). This gravel is the upper part of the mother rock (alteration level), which is visible in the section of a small tributary of the Bombe River at a short distance from the archaeological site. On the gravel, between 80 and 120 cm, a few stone tools of gray chert have been found.

Several small pits were dug from the settlement layer containing Kitala ware (layer 4, a pit fill, in Fig. 5) cutting through the lower level composed of a yellowish compact clay (layer 5 in Fig. 5), and sometimes through the upper part of the cemented gravel as in layer 6 of Fig. 5). Heavily weathered Kitala pottery is predominant in layers 4–6 of Fig. 5 where they formed a cultural horizon (also see Figs. 4 and 6). This horizon was sometimes visible on the surface, but was generally buried up to 30 cm below the surface (e.g., layers 1 and 2 in Fig. 4). The typological analysis of all potsherds from these pits and levels shows that the artifacts originated from a single cultural component.

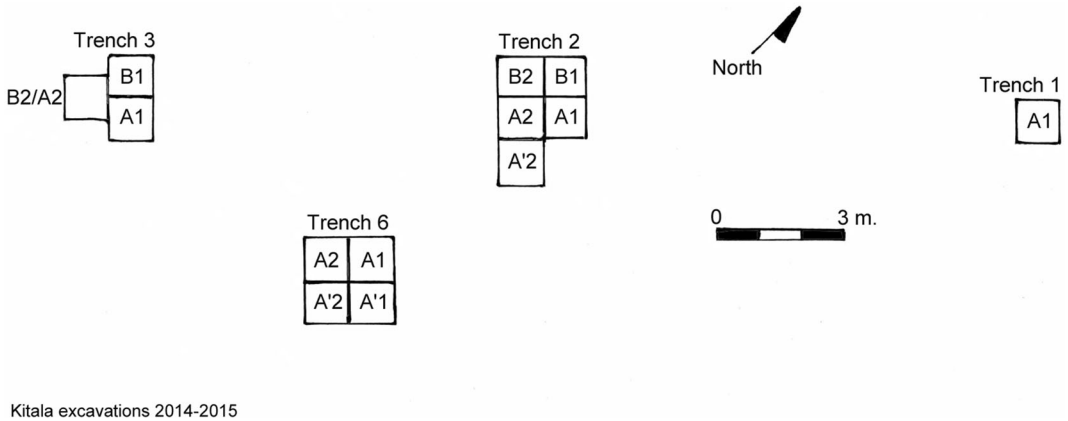


**Fig. 3** Kitala excavation trenches

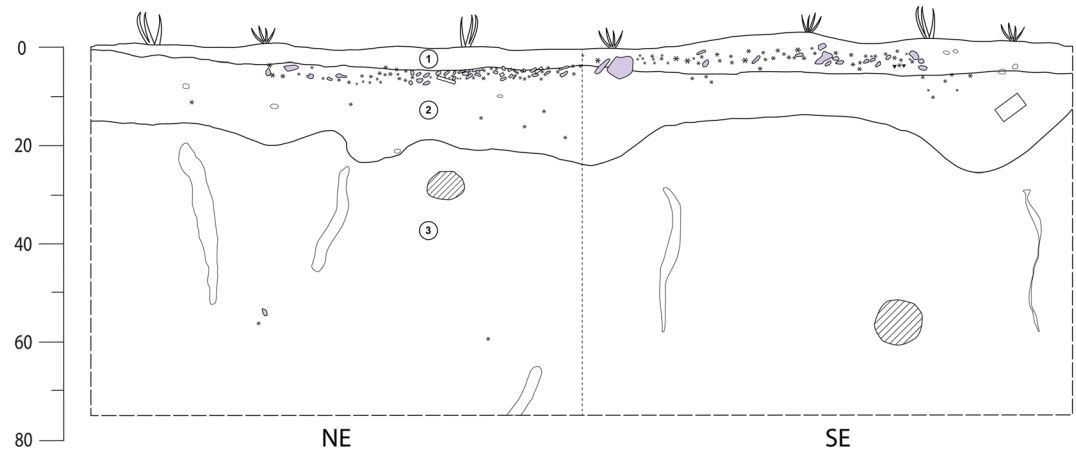


**Fig. 4** Kitala, 2014 excavation, trench 1, north-east and south-east profiles of A1 square. Black: charcoal; grey: stones; rectangle: potsherds; rounded areas with oblique dashes oriented to the right: bioturbations. 1: Humic layer. 2: Wet dark reddish brown clayey sand. 3: Brownish yellow clayey sand (Profile by Els Cranshof)

## Chronology

The site's chronology is well determined by four calibrated AMS $^{14}$C dates, all of which were obtained from charcoal. The calibrations were carried out at 2-sigma, using Calib7.0.4 software and the calibration tables of the southern hemisphere. Three of the $^{14}$C dates turned out to be contemporaneous:

- Poz-69263: 2230 ± 30 bp (cal. to 366–151 cal BC), trench 22014, square A1, 33 cm.
- Poz-69053: 1665 ± 30 bp (cal. to 369–524 cal AD), trench 32014, square B1, 28 cm.
- Poz-75419: 1710 ± 30 bp (cal. to 250–435 cal AD), trench 22015, square A2, 44 cm in refuse pit 1.
- Poz-75420: 1680 ± 30 bp (cal. to 345–523 cal AD), trench 62015, square A1, 50/-60 cm in refuse pit 1.

One could think of five possible explanations to account for the discrepancy of 500 years between the first date and the three other ones, but we realize that none of them is entirely convincing.

The first possible explanation is that the older charcoal sample (Poz-69263) was embedded in the EIA settlement layer by way of water runoff during the rainy season. However, this would imply that further uphill was an earlier settlement whose pottery was not found during our surveys, which would be surprising. Second, the producers of Kitala ware may have occupied the site since the third century BC. However, that would mean not only that Kitala ware did not evolve for nearly half a millennium but also that it is older than EIA Kay Ladio ware and contemporaneous with pre-EIA Ngovo ware. On typological grounds, this scenario is unlikely. A third possible explanation is that EIA refuse pits were dug into the LSA occupation layer (e.g., Fig. 5, trench 6). As mentioned above, a small number of stone artifacts, probably of LSA origin, were discovered at around 80–100 cm depth on top of the gravel layer. However, this would imply that this pre-ceramic LSA component is less than 2500 years old and thus roughly contemporaneous with the Ngovo ware attested elsewhere in the Kongo Central Province. But this is unlikely considering the depth of the Stone Age concentration, our present understanding of soil formation processes, and that similar Stone Age tools found in the vicinity of Kinshasa are older than 5000 years (see below). The fourth explanation is that the dated charcoal sample originated from an ancient natural bush fire, but the embeddedness of this sample in the archaeological layer without any other charred plant materials undermines this possibility.

The fifth and best explanation is that the older $^{14}$C date (Poz-69263) may have been skewed due to the exposure of the charcoal sample to water leakage. Given that it was dug up near the surface, where it possibly was in touch with rootlets of savannah grasses, such an alteration of chemical content is possible. Whatever the right explanation might be, we discard the deviant $^{14}$C date and argue, on the basis of the three remaining and contemporaneous $^{14}$C dates, that Kitala ware is securely dated at this site to between cal AD 250 and 524.

For the dating of the tomb in trench 6, the Kidd and Kidd type Ic hexagonal blue glass beads, which were

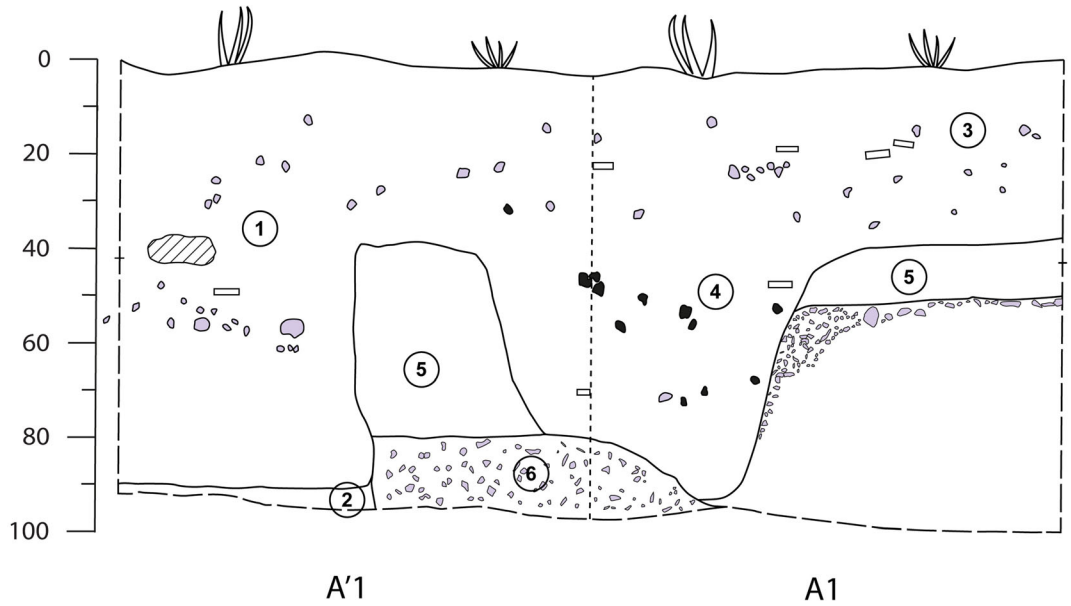


**Fig. 5** Kitala, 2015 excavation, trench 6, south-west profile, A′1 and A1 squares. Black: charcoal; rectangle: potsherds; grey: stones; rounded areas with oblique dashes oriented to the right: bioturbations. 1-2: 19th century grave fill; 3: Archaeological layer containing Kitala ware; 4: Filling of pit containing Kitala ware; 5: sandy-clay level; 6: cemented gravel (Profile by Bernard Clist)

found at the bottom of the burial filling together with some teeth fragments, can be used as *terminus post quem*. This type of bead was commonly produced in Bohemia between 1803 and 1860 (cf. Coccato et al. 2017; Karklins and Clist 2018), but it remained popular in Africa for much longer (K. Karklins, personal communication, 10 August 2019). We can, therefore, date the tomb to the nineteenth century.

## Non-Ceramic Artifacts

In this section, we present the artifacts, other than ceramics, excavated at Kitala to set the context for the later discussion of the Kitala ware. The two dominant non-ceramic artifacts are lithic tools representing the site's LSA component and metal objects, a part of the site's EIA component.

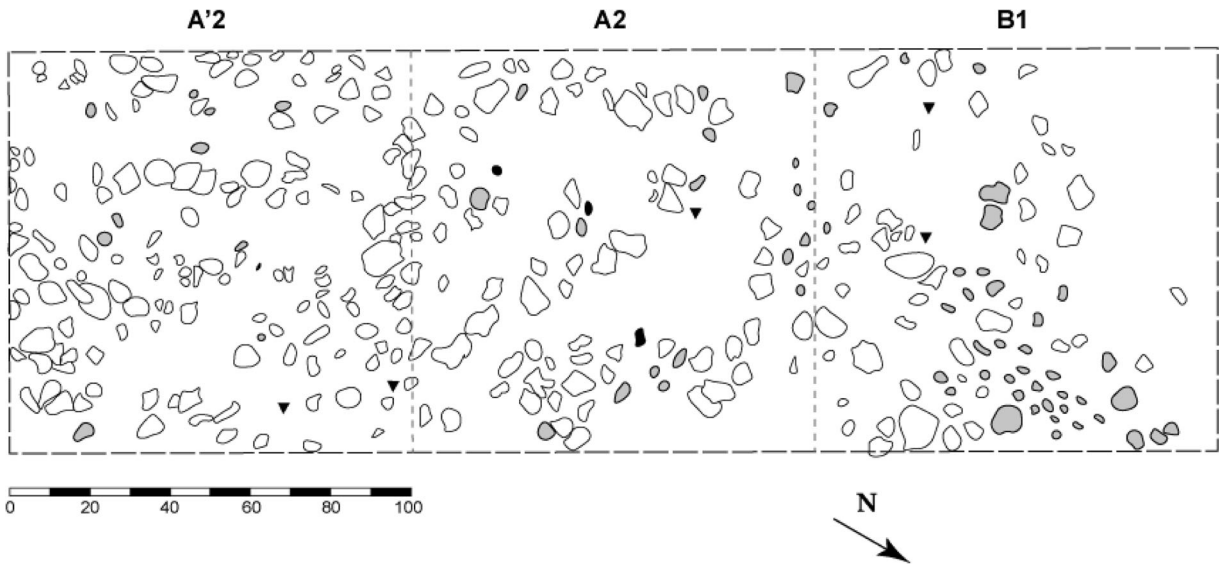


**Fig. 6** Kitala, 2015 excavation, trench 2, map of squares A′2-A2-B2 at −24 cm depth. Black: charcoal; black triangle: iron slag; white objects: potsherds; gray: stones (Plan by Els Cranshof)

## Lithics

The Kitala site yielded 28 stone artifacts originating from six squares in three different trenches. Twenty-one of them were found between 80 cm and 120 cm lying on the gravel layer. Based on the low density of flakes that were knapped from at least two different non-quartz rocks, and the microlithic outlook and pressured retouch of the tools, we have previously attributed this lithic assemblage to the LSA, and Cornelissen (2018, p. 38) has identified 23 of the Kitala stone artifacts as being made out of gray chert, eight of which retained a porous cortex. The biggest of the chert tools is a flaked core of 4 cm in length; the next in size is 2.2 cm. Among the tools are a lozenge-shaped bifacial arrowhead (3.2 × 1.8 × 0.5 cm) without cortex, the middle part of another lozenge-shaped bifacial arrowhead, a transverse arrowhead, two borers, and one small elongated flake with a retouched side.

The context of Kitala's LSA assemblage was not radiocarbon-dated, but an approximate timeframe could be proposed through comparison with similar industries from the region. Similar assemblages of lithic artifacts were found on the Bateke Plateau, at the Dimba cave in the Kongo Central Province, and in the Kinshasa plain. On the Bateke plateau, the microlithic tools knapped from polymorphic sandstones are not directly dated (Cahen and Mortelmans 1973, p. 22; Muya wa Bitanko Kamuanga 1991, p. 120). At the Dimba cave, similar types of tools are found in the so-called "Dimba III" component, which was also not radiocarbon-dated (Lavachery 1990, p. 95–96). They are mostly made out of either chalcedony (60%) or polymorphic sandstone (25 to 29%) (Cornelissen 2018, p. 43). The only radiocarbon-dated assemblages similar in typology to the ones found in the Kitala come from the Kinshasa plain. Classified as belonging to the so-called Late Tshitolean period, these lithic assemblages have been dated to 5474–4850 cal BC (Lv-289) at Kizenzu, and 5205–4262 cal BC (Lv-45) and 4791–4344 cal BC (Lv-162) at Mount Gafula (Cahen and Mortelmans 1973, p. 38; Van Moorsel 1968, p. 221). In terms of chronology, it is also interesting to note that the Kitala stone tools bear no resemblances to the quartz tools found at the nearby Ngongo Mbata site (Cornelissen 2018, p. 35–36), which have been dated to 8229–7795 cal BC (Poz-80297) and 9112–8559 cal BC (Poz-60770) (Clist 2018, p. 232–233). Overall, the LSA lithic artifacts at Kitala site seem to have predated the Kitala ware by several millennia.

**Table 1** Tuyeres fragments: size and frequency per depth

| Depth (cm) | 10–30 mm | 31–70 mm | Total |
|---|---|---|---|
| 0/− 10 | 4 | 1 | 5 |
| − 10/−20 | 5 | 2 | 7 |
| − 20/− 30 | 4 | 1 | 5 |
| − 30/− 40 | 1 | 0 | 1 |
| − 40/− 50 | 1 | 0 | 1 |
| − 50/− 60 | 0 | 0 | 0 |
| − 60/− 70 | 0 | 0 | 0 |
| − 70/− 80 | 0 | 0 | 0 |
| − 80/−v90 | 0 | 0 | 0 |
| − 90/− 100 | 0 | 0 | 0 |
| − 100/− 110 | 0 | 0 | 0 |
| Total | 15 | 4 | 19 |

## Iron Metallurgy

We recovered fragments of tuyeres and iron slag from all the trenches excavated in 2014 and 2015 (Tables 1 and 2) at the same level as the Kitala ware. Most were found between the surface and 30-cm depth. Below that depth, most of the iron manufacturing debris occurred in the fillings of refuse pits. The internal diameter of none of the tuyeres could be measured. Five out of 19 tuyere fragments were covered with slag, indicating that they were part of the extremity positioned toward or inside the furnace. The slag is typical of a smithing forge based on the macroscopic examination of the slag and the tuyeres by Caroline

**Table 2** Iron slag: size and frequency per depth

| Depth (cm) | 10–30 mm | 31–70 mm | 71–120 mm | Total |
|---|---|---|---|---|
| 0/− 10 | 23 | 15 | 0 | 38 |
| − 10/− 20 | 45 | 14 | 0 | 59 |
| − 20/− 30 | 96 | 36 | 1 | 133 |
| − 30/− 40 | 18 | 1 | 0 | 19 |
| − 40/− 50 | 5 | 3 | 0 | 8 |
| − 50/− 60 | 3 | 2 | 0 | 5 |
| − 60/− 70 | 0 | 0 | 0 | 0 |
| − 70/− 80 | 0 | 0 | 0 | 0 |
| − 80/− 90 | 3 | 0 | 0 | 3 |
| − 90/− 100 | 0 | 0 | 0 | 0 |
| − 100/− 110 | 1 | 0 | 0 | 1 |
| Total | 194 | 71 | 1 | 266 |


**Fig. 7** Fragment of an iron knife, trench 2, square B1, − 24 cm

Robion-Brunner from the TRACES laboratory (CNRS UMR 5608). The presence of slag in a domestic refuse context suggests that the smelting site may be in close proximity to the settlement. The only iron implement found at Kitala is the fragment of a knife with a long tang (Fig. 7). It was found at 24 cm depth, buried in the Kitala ware-bearing cultural layer.

## Kitala Ware

Kitala site yielded more than 3,800 potsherds, mostly in the upper 40 cm depth. The other sherds were found in the refuse pits between 40 and 120 cm (Table 3). In the following paragraphs, we describe Kitala ware in terms of fragmentation, hardness, thickness, clay colors, clay fabrics, clay weathering, shapes, and decoration.

### Fragmentation

As shown in Table 3, 68.4% of the sherds are 1–3 cm in size, whereas the sherds of 3.1–7 cm and 7.1–12 cm in size ranges respectively account for 31.3% and 0.3% of the pottery assemblage. There is no sherd with a diameter larger than 12 cm. The small size of the sherds indicates that the pottery was trampled upon on a settlement floor.

### Hardness

All pottery is of intermediate hardness. In most cases, the clay of the sherds can be scraped with the fingernail, and in some cases the sherd can be easily crushed by hand.

### Thickness

The thickness of individual sherds ranges between 4 and 34 mm. The range diminishes, however, if one distinguishes between pot bases, bodies, and necks. The 16 sherds that can be identified as originating from the base of a pot mostly have a thickness between 9 and 12 mm (9 sherds), but some are much thicker—15 mm (2), 17 mm (2), 20 mm (1), 26 mm (1), and 34 mm (1). The thickness of sherds from the body of a pot mostly varies between 4 and 12 mm with two peaks at 7 and 10 mm (44 items). Only six sherds have a body thickness between 14 and 17 mm. Sherds identified as neck fragments (61 in total) have a thickness ranging between 5 and 13 mm with a peak at 8 mm (13 items) and a slightly lower peak at 12 mm (8 items).

### Clay Colors

All sherd profiles have a black center. The pottery color was identified using the French Cailleux

**Table 3** Potsherds: size and frequency per depth

| Depth | Decorated sherds | | | Undecorated sherds | | | Total |
|---|---|---|---|---|---|---|---|
| | 1–3 cm | 3.1–7 cm | 7.1–12 cm | 1–3 cm | 3.1–7 cm | 7.1–12 cm | |
| 0/− 20 cm | 418 | 432 | 9 | 909 | 186 | 0 | 1954 |
| − 20/40 cm | 382 | 325 | 6 | 761 | 232 | 4 | 1710 |
| − 40/60 cm | 9 | 6 | 0 | 43 | 1 | 0 | 59 |
| − 60/80 cm | 3 | 0 | 0 | 19 | 0 | 0 | 22 |
| − 80/100 cm | 18 | 9 | 0 | 54 | 0 | 0 | 81 |
| − 100/120 cm | 0 | 0 | 0 | 4 | 0 | 0 | 4 |
| Total | 830 | 772 | 15 | 1790 | 419 | 4 | 3830 |

Code of colors. Surface colors range from light red (2.5YR 6/8), yellowish red (5YR 4/6), and reddish yellow (5YR 6/8) to dark brown (7.5YR 3/4). The interior colors vary from red (2.5YR 5/8) and reddish brown (5YR 4/3) to reddish yellow (7.5YR 6/8). The dark colors in the middle of the sherd profile indicate a reduction firing process carried out in a closed and confined environment with a limited oxygen supply.

## Clay Fabrics

We identified five clay recipes used for the manufacture of Kitala pottery, based on the protocols developed by Clist (2005, p. 89–121; also see Orton et al. 1993). After identifying and counting all the potsherds, we closely examined the clay fabric in 131 most characteristic sherds, especially fragments belonging to the vessel lip, base, and profile, and those with decorated motifs. The fabric identification shows that different clay recipes were used for the manufacture of the Kitala ware. Recipes 1 and 2, described below, are the most common accounting for 72.5% and 22.9% of the sample, respectively. The other three recipes constitute only 4.6% of the sample.

### *Recipe 1 (95 Sherds)*

With a diameter of grains between 0.5 and 3 mm, and density of non-plastic elements being 20–30%, this fabric has a coarse to very coarse sorting. The non-plastic elements consist of minerals, which are sometimes accompanied by small vacuoles pointing to the presence of plant elements that disappeared during the firing of the pots. This recipe seems to be associated with the thinnest sherds.

### *Recipe 2 (30 Sherds)*

The diameter of grains is between 0.5 and 3 mm but with a regular presence of minerals considerably exceeding 3 mm in diameter. The density of non-plastic elements is 30% and has a very coarse sorting. The non-plastic elements are essentially minerals. This recipe seems to be associated with the thickest sherds, mainly bases and necks.

### *Recipe 3 (4 Sherds)*

The profiles have a black inner part and reddish oxidized outer parts like all other sherds, but here the oxidized outer parts are thicker. The diameter of grains is between 0.5 and 2 mm, has a density of non-plastic elements of 10% to 20%, and is characterized by medium sorting. The non-plastic elements consist of minerals but accompanied by black elements.

### *Recipe 4 (1 Sherd)*

Recipe 4 has the same profile as recipe 3 but its grain diameter is less than 1 mm; the density of non-plastic elements is about 10%, and it has medium to good sorting. The single sherd representing this recipe also has an exceptional herringbone decoration pattern on the body suggesting that it was not locally made.

### *Recipe 5 (1 Sherd)*

Its profile is the same as that of recipes 3 and 4. The diameter of the grains is mostly between 0.5 and 1.0 mm, some rare ones measuring up to 3 mm; and the density of non-plastic elements is 20%. The recipe has a good sorting.

## Clay Weathering

The majority of the pottery was found in the settlement layer, sometimes eroding out on the surface (Fig. 4). The sherds are heavily weathered due to the mechanical alteration of clays. Given the site's position on a slight slope of the hilltop, this alteration was probably caused by rains and runoff water. Post-deposition underfoot trampling would also have contributed to the weathering. Sixty percent of the sherds are very weathered with the temper clearly visible on the entire surface; 36% of the sherds are partially intact in that only a part of the original surface has remained intact while the other part is eroded showing only the temper. Only 4% of the sherds have decoration motifs, traces of smoothing, and polished/burnished surfaces.

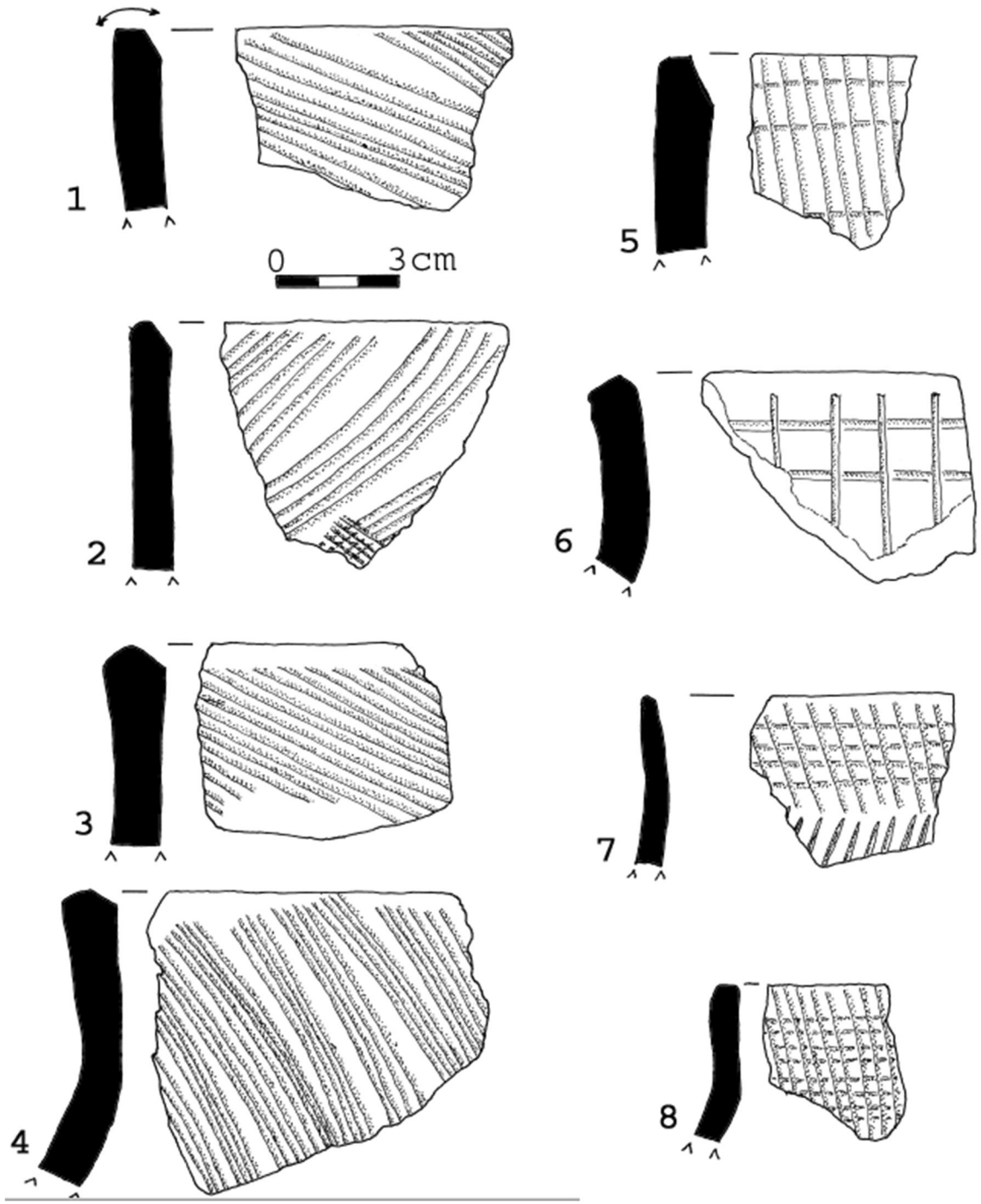


**Fig. 8** Necks decoration

Shapes

Four vessel shape types are recorded in the Kitala assemblage: three restricted/closed shapes and one unrestricted/open shape. Among the vessels with a closed shape, we distinguish between pots with an orifice diameter of 30 cm or less (Figs. 8(1, 6) and 9(4)), and jars with an orifice diameter of more than 30 cm (Figs. 8(2, 4) and 10(3)). Across pots and jars, three types of closed vessels are identified based on neck morphology:

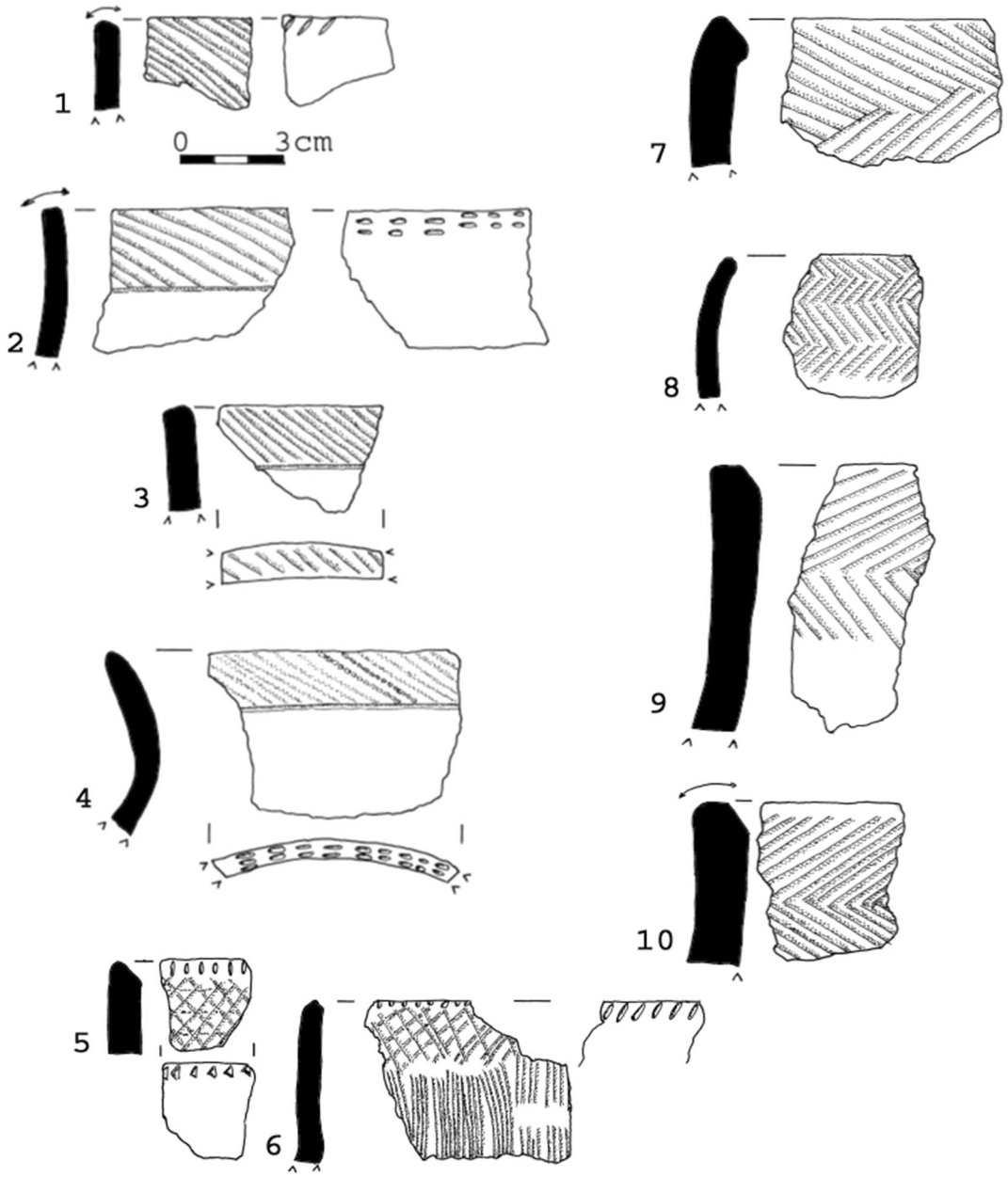


**Fig. 9** Lips and necks decoration

1. Type A: pots with a short or short cylindrical neck (Figs. 8(4, 6, 7, 8), 9(6), and 10(3)).
2. Type B: vessels with a concave profile (Figs. 8(6) and 9(2, 4)).
3. Type C: vessels with long cylindrical and straight necks (Figs. 8(2), 9(6, 9), and 10(1, 2)).

Unrestricted shapes are poorly represented. The thickness of those vessels seems to co-vary with their orifice diameter (Fig. 9(7, 8)); the larger the volume; the thicker the profile. We also observe a correlation with the clay fabrics: recipe 1 seems to be mostly used for thinner vessels with small opening diameter, while recipe 2 is most often associated with thicker and larger vessels.

The identified 16 base sherds are flat (Fig. 12). As already mentioned, their thickness generally varies between 9 and 12 mm. The exceptional cases of 20–34 mm thickness must have belonged to the

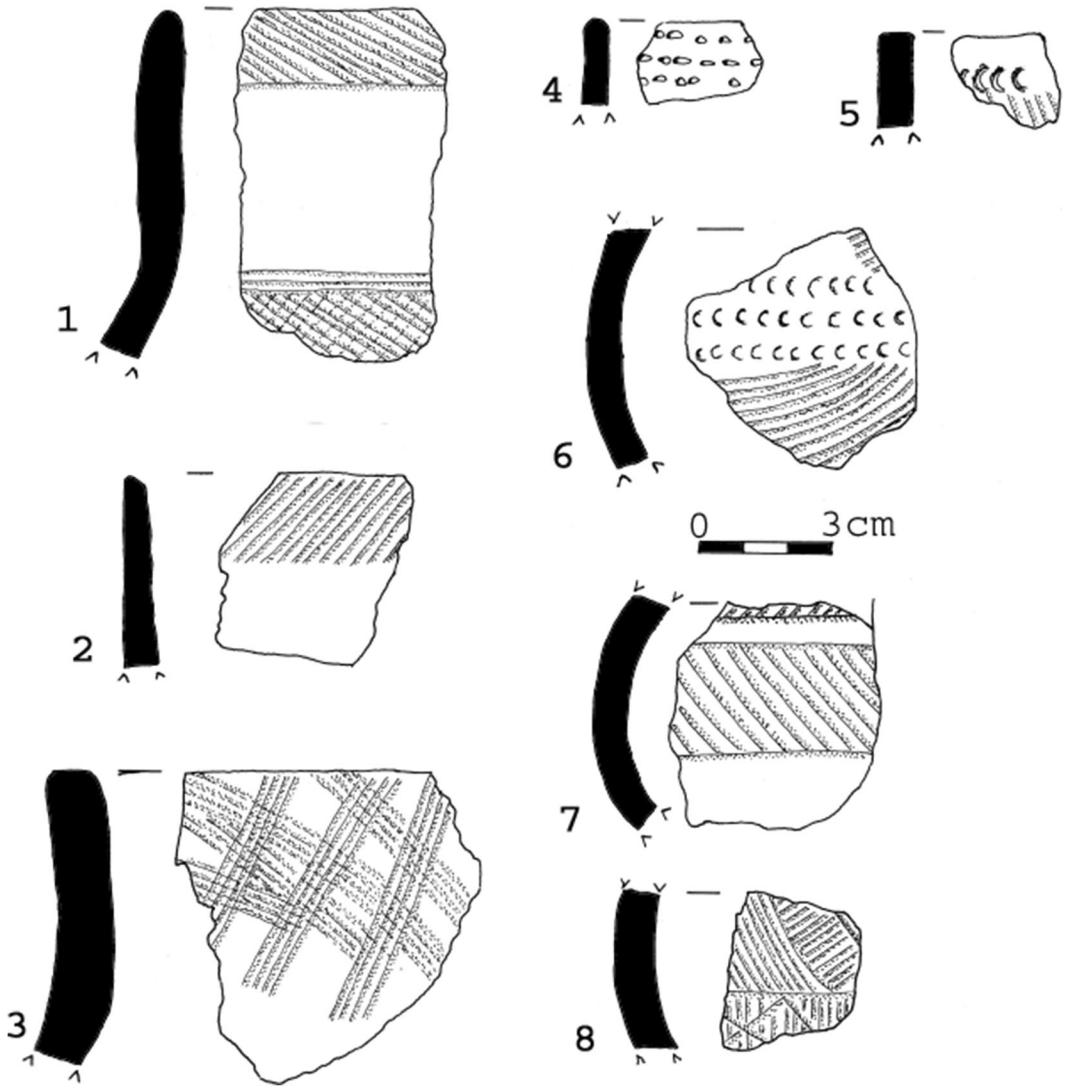


**Fig. 10** Neck and body decoration

base of bigger vessels. The lips of some of the rim forms are convex and tapering (Figs. 8(7), 9(4, 8), and 10(1, 4)), and sometimes flat, perhaps when originating from very thin vessels (Figs. 8(8) and 9(2, 3)). Most often, they are flat with an internal bevel, sometimes looking like a double bevel (Figs. 8(1–6) and 9(6, 9, 10)). A few lips are formed with a simple bevel (Figs. 9(5) and 10(2)). Finally, it is important to note that a limited number of neck and body sherds show traces of joined coils indicating that coiling was one of the pot-forming techniques in Kitala ware.

## Decoration

To understand the organization of decorations in Kitala ware, it is important to realize that the decorated items represent only 42.2% of the total number of sherds collected. Decoration motifs were applied to the upper parts of the vessels, sometimes covering the entire pot (neck, body, and base). The decoration tools are limited to single-point sticks and combs with four or five teeth. These combs were either superficially dragged on the surface to form traces (e.g. Fig. 8(1, 2)) or more deeply to form several types of incised patterns (Fig. 11(4–6)).

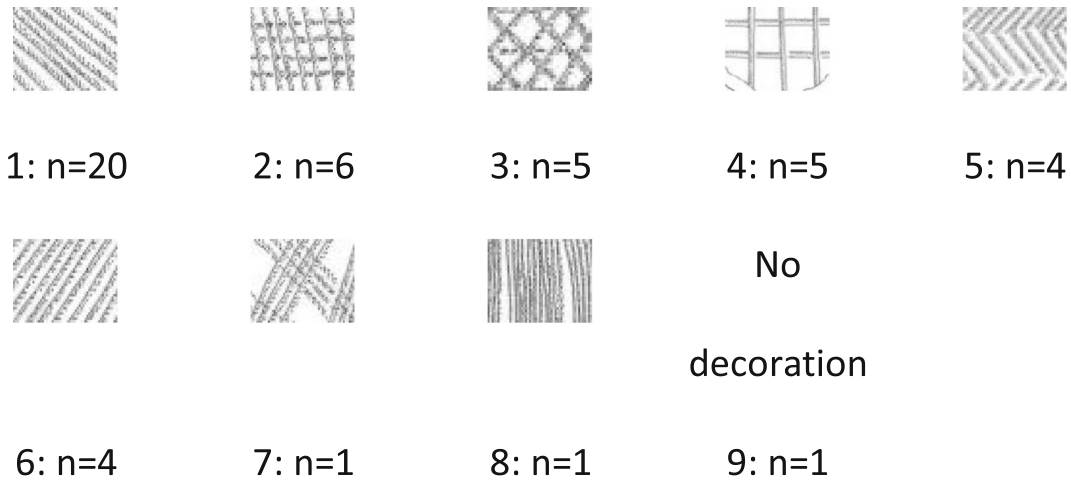


**Fig. 11** Kitala Group, nine neck decorative units observed on 47 upper part sherds

The single-point sticks appear to have been used for the tracing of various compositions (Figs. 8(6) and 10(1)), and for impressions organized in several rows (Fig. 10:4, 6) or in a single row (Fig. 9(5)). The different decorative elements were also combined into several decorative units.

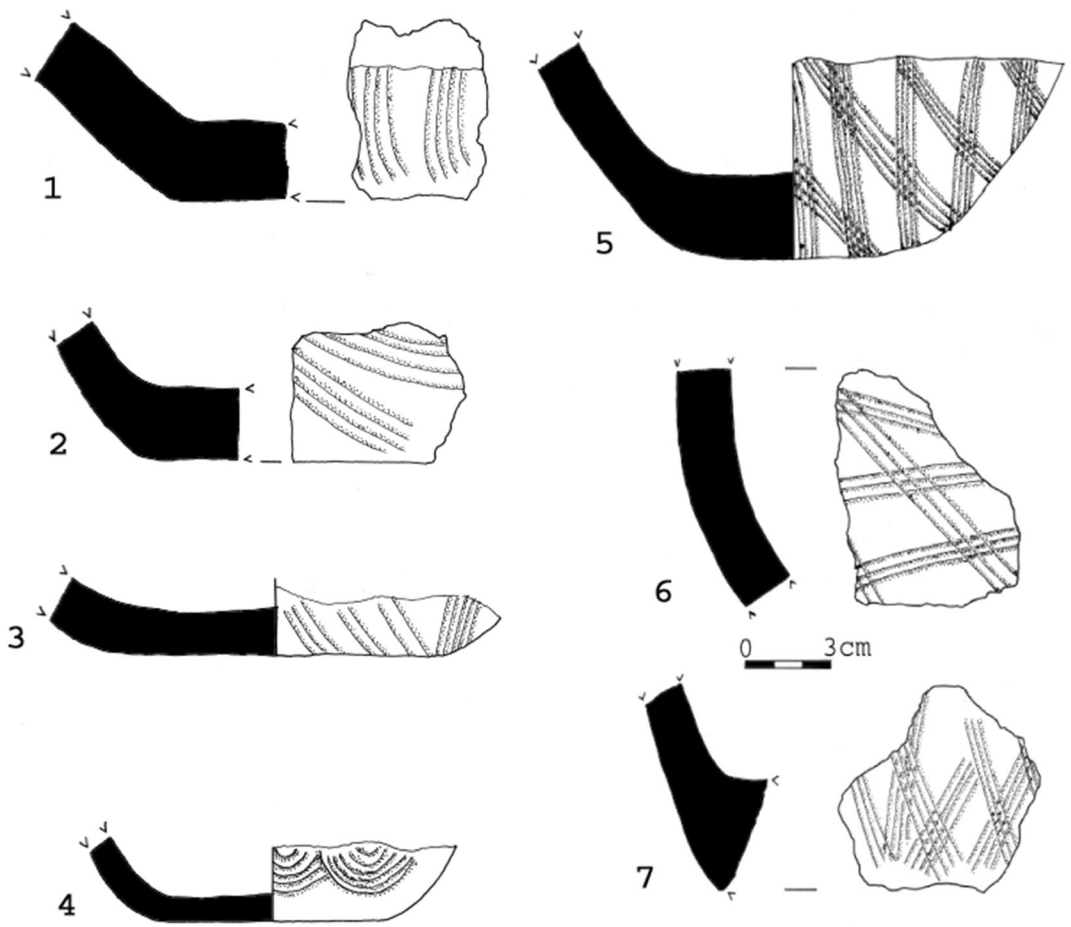


**Fig. 12** Kitala pot bases

Different decorative units were selected for different parts of the vessel. Hence, the upper parts (lips and necks), the middle parts, and the base of vessels are decorated differently. Out of 47 upper part sherds, only eight (17%) have a decorated lip, six of which are illustrated (Fig. 9(1–6)). Lip decorations are not common and do not follow a standardized pattern. Each lip is treated differently using a stick to make incised or impressed motifs: short incisions or impressions on the lip surface (Fig. 9(3, 4)); and short incisions or impressions on the inner surface (Fig. 9(1, 2, 5, 6)), or on the outer surface (Figs. 9(5, 6) and 10(4)).

Only one of the 47 upper part sherds has an undecorated neck. The remaining 46 neck sherds all have one of the eight different decoration types listed in Fig. 11. In the majority of cases, necks are entirely covered with the same decorative types (see Fig. 11 type 1; also Fig. 8(1–4)). Otherwise, decorated and undecorated peripheral bands alternate (Figs. 9(2–4, 8–9) and 10(1–2)); or (very rarely) peripheral bands of two different decoration patterns occur (Fig. 9(6)). For small neck fragments, it is difficult to establish whether they are entirely covered with the same decoration or have peripheral bands (e.g., Fig. 9(1, 5, 7, and 10)). Only a few sherds represent neck/shoulder junctions (Figs. 8(4, 7–8), 9(4, 6), and 10(1)). The neck decoration can extend to the shoulder (Figs. 8(4, 8) and 9(6)). It can also stop on the boundary between the vessel neck and shoulder (Figs. 8(7) and 10(1)) and be separated by one or more horizontal lines reinforcing this limit (Fig. 10(1)).

The body of the vessels is generally undecorated. The 57.8% of undecorated sherds in our sample belong to bodysherds. When bodysherds are decorated, they are often covered with a characteristic pattern of crisscrossed comb incisions down to the vessel's base (Fig. 12(5–7)) or of parallel comb traces (Figs. 10(6) and 12(1–3)). Otherwise, a few sherds exhibit what seem to be horizontal bands of either crescent-shaped impressions or stick and comb tracings (Fig. 10(6–8)). Other sherds display several rows of traced herringbone (not illustrated but see Fig. 9(7–10) for a similar design). As for the bases, some show the presence of comb decoration motifs (Fig. 12(1–3, 5–7)). The use of such combed decorations on the vessel body, either in parallel or crisscrossing motifs, is very characteristic of Kitala ware. A single neck sherd is found with such a crisscrossing comb pattern (Fig. 10(3)). On the lower part of the body of one vessel is an arrangement of combed motifs forming multi-linear festoons (Fig. 12(4)).

## A Comparative Account of Kitala Ware

In this section, we compare Kitala ware to two pottery groups. First, to Kay Ladio ware, which is most closely related to Kitala ware in terms of geographical spread and typology, and to which Kitala ware seems to be a successor tradition. The Kay Ladio ware has been found during excavations at the Bu, Kindu, Mantsetsi, Sakuzi, and Sumbi sites in the Kongo Central province (Clist 1982; Clist et al. 2019a; de Maret 1972, 1990; Gosselain 1988), and recently at Mbanza 2 and Nduizi (Clist et al. 2019b). The second comparison is to Gombe ware from the Kinshasa region, which is contemporaneous with Kitala.

### Characteristics of Kitala and Kay Ladio Wares

Kitala ware is a ceramic group mostly consisting of vessels with a closed shape. We distinguish between pots and jars based on the orifice diameters and between types A, B, and C, and the neck morphology. Kay Ladio ware has the same shape categories as Kitala ware. Open vessels are rare in Kitala ware as they are in Kay Ladio ware. However, the types of vessels with an open shape are much more diverse for Kay Ladio than for Kitala, but this could be a reflection of sample bias. With the limited excavated materials available for Kitala, and the fragmentary nature of the assemblage, we could not measure orifice diameter for most of the sherds and distinguish between types with very different orifice sizes. Another difference in terms of shape is the absence of convex-shaped bottoms in Kitala ware. These are present in Kay Ladio ware along with flat bases.

Kitala potters used a limited set of only eight decorative types, whereas Kay Ladio producers had a much richer decoration repertoire—23 units in total (Fig. 13). Seven of these Kay Ladio decoration types are also present in the Kitala ware assemblage (Kay Ladio units 1, 3, 5, 6, 8, 15, 23). Kitala's type 7 decoration has not been found on Kay Ladio ware. Undecorated necks sometimes occur in Kitala ware, but never in Kay Ladio ware. Moreover, Kitala vessels are most often only partly covered with decoration, but they can also be fully covered, as is evidenced by comb or pointed stick traces on the base of some vessels (Fig. 12). This is also true for Kay Ladio vessels, but these may also have geometrically shaped decoration, which is absent in Kitala ware.

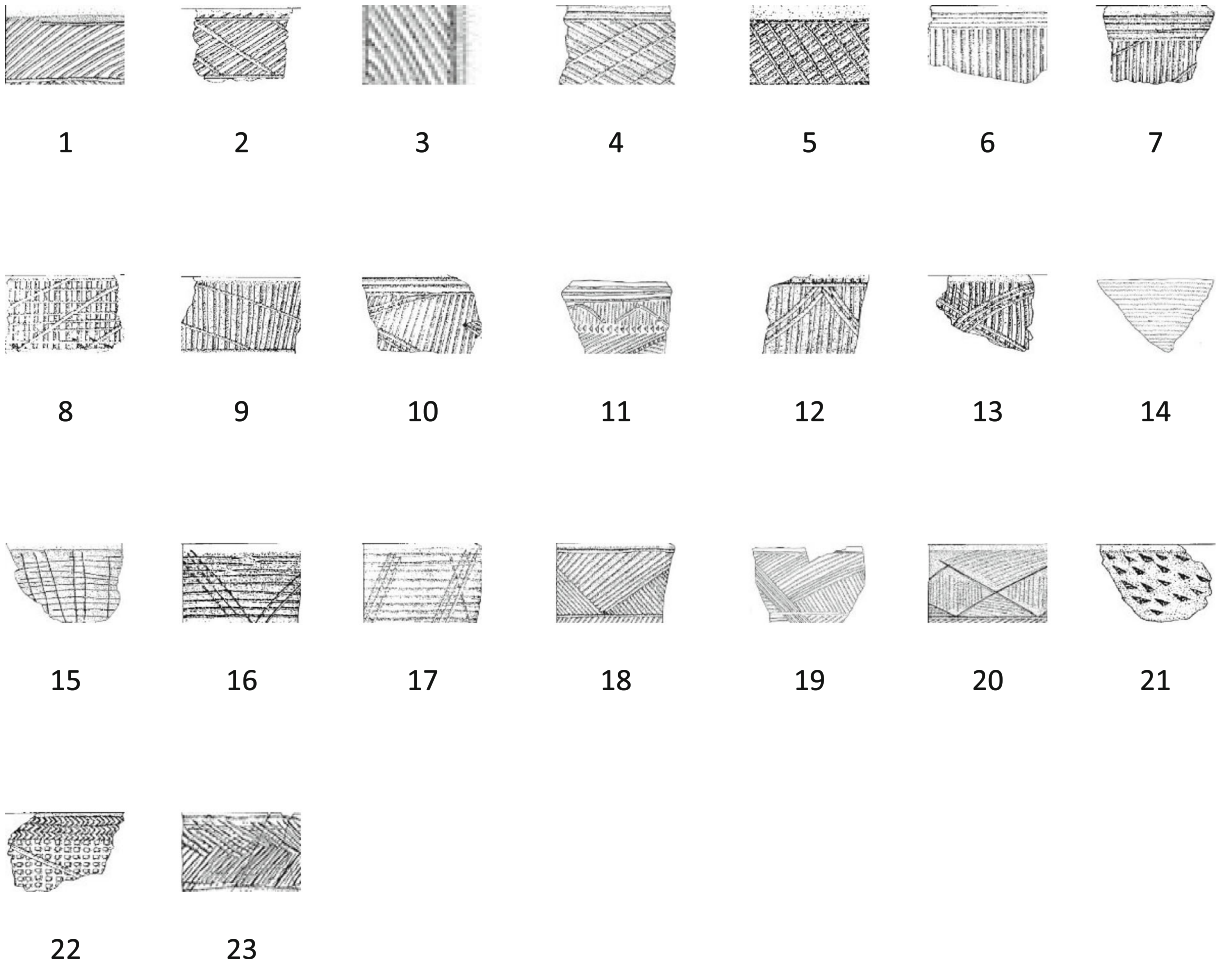


**Fig. 13** Twenty-three decorative units attested on necks of Kay Ladio Group ware

The body of Kitala vessels is often decorated differently from their necks by a series of crisscross combed motifs (Fig. 12(5–7)). This decoration pattern does not exist in Kay Ladio ware. Several Kitala vessels have a segmented decoration in the sense that the decorative units are not contiguous on the surface (Figs. 9(2, 4, 9) and 10(2, 7)). This feature is also unknown in Kay Ladio ware. In addition, the decoration motifs on the lip or the internal and external surface immediately below the lip, found on a small number of Kitala vessels (Fig. 9(1–6)), are absent in Kay Ladio pottery. The use of crescent-shaped stick impressions, forming large decorative patterns (Fig. 10(5–6)), is also original to Kitala ware. However, several decorative Kitala elements seem to have been inspired by Kay Ladio ware. For example, irregular alignments of pointed-tool impressions under the lip or at the top of the neck (Fig. 10(4)) are reminiscent of similar sets in Kay Ladio ware (sets 2 and 3 in Fig. 14). Beveled lips, frequent

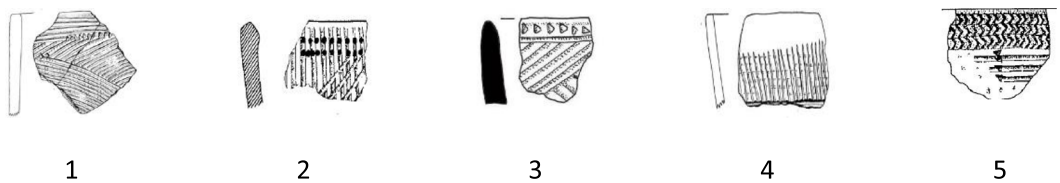


**Fig. 14** Decorative units positioned under the lips of Kay Ladio ware vessels

in Kitala ware, are also present in large numbers in Kay Ladio ware (27% in Sakuzi, 34% in Kindu). In terms of shaping, one of the techniques identified for both Kitala ware and Kay Ladio ware is coiling. The Kitala vessels are thicker than the Kay Ladio ones, up to 12 mm for Kitala, and only 8–10 mm for Kay Ladio. The five Kitala clay recipes are coarser and quite different from the recipes identified for Kay Ladio ware (see Clist et al. 2019a, b; and compared in Table 4).

In sum, Kitala and Kay Ladio pottery share several features in terms of vessel types, shaping, and decoration. However, they manifest some differences in these and clay fabrics. In our view, the evidence can be interpreted in two ways. It suggests that the Kitala ware is derived from Kay Ladio ware, or new potters imitated the dominant features of an older tradition. This is well in line with the chronology of the two pottery groups. According to our current knowledge, Kitala ware (cal AD 230–524) emerges toward the end of the production period of Kay Ladio ware (cal AD 30–475), and its distribution partly overlaps with the southern extension of Kay Ladio, to the south of the Congo River. Though they share several traits in terms of shape and decoration, Kitala only has nine decoration forms, whereas Kay Ladio has 23 decoration forms. Moreover, one decorative form dominates in Kitala ware (Fig. 11)—42% of all decorations, while the Kay Ladio potters had a much more diversified decoration catalog (Fig. 13). Finally, the Kitala fabrics are much coarser than Kay Ladio (Table 4).

The hypothesis that Kitala ware derives from Kay Ladio ware is reinforced by the discovery in 2015 of several sites south of the Congo River, especially northwest of Songololo (Clist et al. 2018b, 2019a), which featured both typical Kay Ladio pottery and sherds which one would consider as Kitala ware. Although all these Kitala ware sherds are surface finds, the site of Bu3 is indicative of the successive chronologies of Kay Ladio and Kitala wares. The subsurface archaeological level of Bu3 contained only Kay Ladio ware, whereas a lot of Kay Ladio sherds and a significant number of Kitala ware were found on the eroded surface (Clist et al. 2019a).

Another site, south of the Congo River, possibly containing Kitala ware is Mongo some 40 km, as the crow flies, to the southwest of the Kitala site (Fig. 15). Some of the sherds which de Maret (1972) identified as "Group VI," and later labeled as "Ngovo Group" (de

**Table 4** Comparison of the clay recipes in Kay Ladio (KL) and Kitala (K) Wares

| Group and recipe number | Section type | Temper diameter | Temper density | Temper sorting | Temper types |
|---|---|---|---|---|---|
| KL1 | 2 | 0.5–1 mm, rarely 2 | 10% | Good | Laterite, white minerals, mica |
| KL2 | 2 | 0.5–2 mm | 5% | Good | Laterite, sericite, and various rocks |
| KL3 | 2 | 0.5–3 mm | 10% | Average | Laterite, sericite, and various rocks |
| KL4 | 2 | 0.5–3 mm | 10% | Poor | Quartzite, laterite, small black components, and grog |
| KL5 | 4 | 0.5–2 mm | 10% | Average | Sericite |
| K1 | 2 | 0.5–3 mm | 20–30% | Very coarse to coarse | Minerals including quartz, and plants |
| K2 | 2 | 0.5–2 mm | 10–20% | Medium | Minerals including quartz, with small black components |
| K3 | 2 | 0.5–3 mm, regularly up to 13 mm | 30% | Very coarse | Minerals |
| K4 | 2 | 0.5–1 mm | 10% | Good to medium | |
| K5 | 2 | 0.5–1 mm, 3 mm | 20% | Good | |

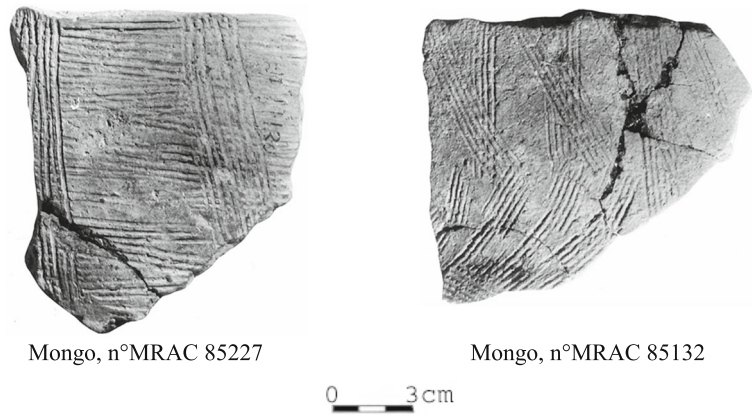


**Fig. 15** Potsherds from the Mongo site illustrated in de Maret 1972, volume 3, n°367 (left) and 371 (right)

Maret 1986), are now to be considered as Kitala ware based on their crisscrossing decoration patterns.

In sum, the seven sites with Kitala ware—Bu 2 and 4, Kazu 2 and 4–5, Mongo, and Kitala—have fairly limited geographical distribution. All are situated along a west-east axis of roughly 150 km south of the Congo River (Fig. 16). North of the Congo River, it is absent from the area between the villages of Sumbi and Kinkenge, where M. Bequaert did extensive fieldwork in 1951, the KongoKing project team in 2015 (Clist et al. 2019a), and the BantuFirst project team in 2018 (Clist et al. 2019b). South of the river, it has not been found in the vicinity of the Kibula seminary in the territory of Songololo, where several sites with Kay Ladio ware have been discovered (Clist et al. 2019b). Finally, neither Kitala ware nor any other EIA ware has been uncovered during intensive and repetitive fieldwork in and around the site of Kindoki north of Kisantu

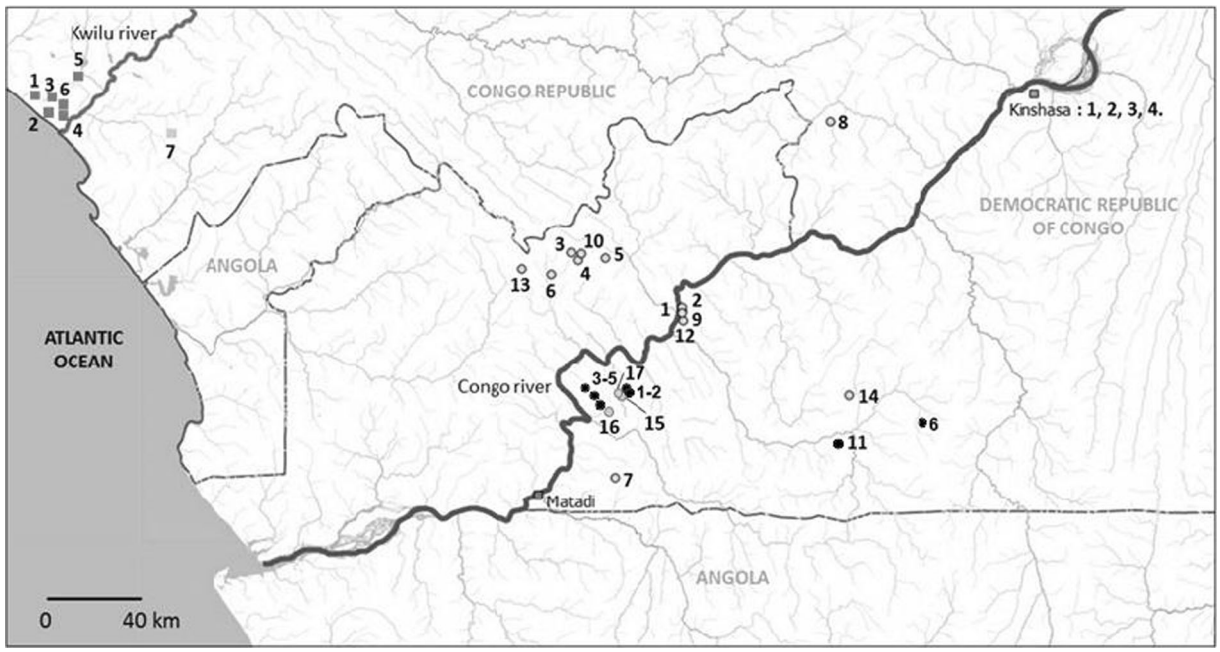


**Fig. 16** Early Iron Age sites in the Kongo Central and Kinshasa provinces of the DRC and immediately surrounding areas in Angola and the Congo Republic. Kay Ladio (open circles): 1- Kay Ladio, 2- Kibula, 3- Kimbala Solele, 4- Kindu, 5- Kinkenge, 6- Kintadi-lez-Lukuti, 7- Nduizi (aka Kongo-dia-Vanga), 8- Loukoko 1, 9- Mabulu and Kondo, 10- Mantsetsi, 11- Mongo, 12- Sakuzi, 13- Sumbi, 14- Tumba, 15- Bu 3, 16- Kazu 1, 17- Kulu. Kitala and Kitala related (black circles): 1- Bu 2, 2- Bu 4, 3- Kazu 2, 4- Kazu 4, 5- Kazu 5, 6- Kitala, 11- Mongo. "Gombe Type" in the Kinshasa area: 1- Citas, 2- Gombe, 3- Lemba, 4- Mimosas (île des). Herringbone ware and Carinated Broadly Grooved Ware (grey squares): 1- BP113, 2- Kayes, 3- Lake Ndembo, 4- Madingo Kayes, 5- Meningue, 6- Tandou Yombi, Isolated Iron smelting site of Les Sarahs : 7

(Clist et al. 2015b; Clist et al. 2018a) and around Ngongo Mbata near the Angolan border (Clist et al. 2015c, 2018a).

## Kitala Ware vs. Other EIA Pottery Groups in the Wider Lower Congo Region

In this section, we compare Kitala ware with the EIA pottery groups found in two other parts of the wider Lower Congo region. These groups are the so-called Herringbone Ware and Carinated Broadly Grooved Ware (CBG) in the Kouilou River area in the Congo Republic, to the north of the Kongo-Central Province and the Kinshasa area to the northeast. In the Republic of Congo, the only EIA sequence available is from the work of James Denbow on the Atlantic coast, around the mouth of Kouilou River (Denbow 1990a, b, 2012, 2014; Denbow et al. 1988). Following two distinct phases of what Denbow (2014, p. 61–62) calls the "Ceramic Late Stone Age", the EIA is characterized by two different pottery groups, Herringbone (198 cal BC– cal AD 766) and CBG (cal AD 253–585) wares (Denbow 2014, p. 56–58, 64–66). These two pottery groups are contemporaneous with both Kay Ladio and Kitala wares in the Kongo Central Province of the Democratic Republic of the Congo (DRC), but Herringbone ware is a little older than Kay Ladio. However, the shapes, and decoration types, motifs, and arrangement of both the Herringbone and CBG do not resemble those of Kay Ladio and Kitala wares. For example, while most Herringbone and CBG pots have a convex base, Kay Ladio and Kitala pots are exclusively flat-based, as is the case for earlier Ngovo ware. The only morphological similarity is the beveled rim, frequent in both Kay Ladio and Kitala wares, and some of the Herringbone ware assemblages at BP 113 and Kayes sites (Denbow 2014, p. 111, 118). For the time being, it is hard to judge whether this feature is a shared inheritance or an independent development.

As for decoration, herringbone is a shared feature, but not in equal proportions. Only a few Kitala sherds are decorated by simple incised herringbone (only three sherds or 6% of the decorated subset) or multiple incised herringbone (only one item or 2% of the decorated subset). In Herringbone ware, as its name indicates, this decoration type is much more predominant. Moreover, incised simple herringbone is also occasionally attested in Kay Ladio ware at Sakuzi site (see above Fig. 13, unit 23); and simple and multiple incised herringbone patterns are occasionally encountered in Ngovo ware (Clist 1982, p. 136–137; de Maret 1986, p. 115, 117). In other words, herringbone decoration appeared in Kongo Central Province with the first pottery traditions, but prevails in none of them and cannot be considered as distinctive as it is for Herringbone ware. As such, it is not a feature that can be used to propose a historical relationship, either genealogically or contact-induced, between the EIA wares east of Matadi and those from the Kouilou River mouth area. A final resemblance between the EIA pottery of both regions is the presence of talc in the fabrics. It is reported for CBG ware as giving "the vessels a very 'slippery' feeling" (Denbow 2014, p. 65). This is reminiscent of the fabrics of certain Kay Ladio vessels whose clays include sericite, especially recipes 2, 3, and 5 (Clist et al. 2019a), though they are earlier than CBG pottery. In sum, we consider Kay Ladio and Kitala wares to be distinct from the known EIA wares on the Atlantic coast of Congo-Brazzaville.

As for the Kinshasa area, pottery assemblages roughly contemporaneous with Kay Ladio ware (cal AD 30–475) and Kitala ware (cal AD 230–524) have been found in the upper levels of the Gombe site in Kinshasa (de Maret and Stainier 1999). Its chronology is currently determined, based on three thermoluminescence dates, to be between cal AD 205 and 450 (Clist 2018; Clist et al. 2018b). This so-called Gombe Type pottery is documented in Kinshasa and its surroundings. Its identification is mainly based on its clay, characterized by a pitted surface that possibly resulted from temper disappearance. Morphological and other formal properties are currently undiscernible because of the sherds' poor state of preservation (de Maret and Stainier 1999, p. 484). Pottery with this specific characteristic was discovered at Citas, Gombe, and Lemba sites within the present-day metropole of Kinshasa and on the nearby island of Mimosas on the Congo River (de Maret and Stainier 1999, p. 485–486). In Lemba, H. Van Moorsel collected 17 intact vessels, two of which would belong to the "Gombe Type" (de Maret and Stainier 1999, p. 485). In Citas, H. Van Moorsel discovered five intact pots, all of which have also been attributed to the "Gombe Type" (de Maret and Stainier 1999, p 486). On the island of Mimosas, 7 km downstream from central Kinshasa, H. Van Moorsel collected 27 intact vessels, nearly half of which seem to be very close to the "Gombe Type." They

were excavated from an archaeological layer "containing charcoal together with old potsherds in the humic layer above the fluviatile sand overlying the red sandstone blocks," which was radiocarbon-dated to cal AD 340–765 (Gilot et al. 1965, p. 122; Lv-168: 1540 ± 100 bp). The finding of numerous intact vessels in these different sites points toward burial sites.

As for the Gombe site itself, drawings and photographs of pottery are available in several publications (Bequaert 1938, plate XIII; Cahen 1981, p. 130–132; de Maret and Stainier 1999, p. 482–483). They show pottery with flat bases decorated with broad horizontal strokes of crisscross or incisions on the necks. These decorations sometimes extend to the shoulder and the top of the body, but never to the base of the vessel. The lips are flat, convex, or slightly thickened, but neither beveled nor decorated. The broad horizontal lines of decoration, which are recurrently found on pottery from Gombe are also present in Kitala ware assemblage at Bu3, about 210 km to the southwest (Clist et al. 2019a). Apart from this specific decorative feature, the EIA pottery from Gombe site bears little resemblance to Kitala ware.

Moreover, several vessels found on the island of Mimosas are quite different from the EIA pottery from the Gombe site but share many similarities with Kitala ware, in terms of shape and decoration. It is interesting that the $^{14}C$ date obtained by H. Van Moorsel at Mimosas Island is contemporaneous with the Kitala site dates. Eggert (1986, p. 279–280) provides illustrations of six vessels from Mimosas Island. All of them have flat base morphology as in the Kitala ware. Also, the lips of some vessels are decorated with short incisions as on Kitala ware, but they do not have beveled lips as often found on Kitala vessels. The inner and outer surfaces immediately below the lip are decorated only on one vessel. In the Mimosas assemblages, decorations may be limited to the neck and the shoulder, and sometimes extend to the top of the body, or cover the entire vessel surface down to the base of the pot. The decoration motifs on the neck, shoulder, and body are usually crisscrossing combed incisions arranged in segmented patterns. These tend to give way to a decorated strip at the base of the vessel. These decoration types and their organization are also found on Kitala ware but not on pottery of the Gombe Type. Similar Kitala features are present on other vessels from Mimosas, not published by Eggert (1986). The reexamination of the collections in the archaeological museum of Kinshasa University in 2014 and 2015 by Bernard Clist shows out that the two potting traditions are very similar in terms of clay, decoration types, and motifs. Nevertheless, there are other pottery forms in the Mimosas assemblage that belong to a distinct pottery group based on clay, temper elements, and decorations.

In sum, the EIA pottery from the Kinshasa area seems to be typologically more diverse than previously thought. Several of the well-preserved complete pots found on what are presumably burial sites in the vicinity of the Gombe site, especially on Mimosas Island, appear to belong to a distinct pottery group. While the pottery from Gombe has little to do with Kitala ware, several of the vessels from Mimosas Island do have several features in common with pottery from Kitala, in terms of shapes and decoration. These similarities are certainly not strong enough to consider the pottery from Mimosas Island as Kitala ware, but they merit in-depth research.

## Conclusions

Kitala ware, which is dated between cal AD 230 and 524, is closely related but still distinct from the earlier known Kay Ladio ware dated cal AD 30–475. Kitala ware is called after the only site where it has been excavated so far from a well-established archaeological context. The archaeological survey in the region has led to the identification of the Kitala ware in six other sites in the Kongo Central Province, all of them situated to the east of Matadi and south of the Congo River. The Kitala ware's chronology and geographical distribution, as well as the in-depth analysis of its clay features, vessel shapes, and decoration patterns, indicate that Kitala ware is a regional variety of Kay Ladio ware, the earliest EIA pottery group in the Kongo Central Province. Both EIA pottery groups are distinct from the province's earliest pottery group, Ngovo ware, which precedes the arrival of iron metallurgy and is dated between 420 cal BC and cal AD 130. A comparison with other EIA pottery groups from the wider Lower Congo region reveals that both Kay Ladio and Kitala wares are neatly distinct from the EIA pottery traditions further north; that is, those discovered in the Kouilou River mouth area along the Atlantic Coast region of the Congo Republic.

However, Kitala ware does have specific features in common with EIA pottery found in several possible burial sites within the Kinshasa area, especially on the Island of Mimosas. Some of the intact vessels found there are distinct from the pottery that is typical of Gombe, the best-dated and best-documented site around Kinshasa. Rather, they share distinctive elements with Kitala ware in terms of shapes and decoration. In other words, during the EIA, the Lower Congo region of Central Africa had more regional variation in ceramic production than previously known. Nevertheless, we also see certain common features across the region, and these deserve further study.

The producers of Kitala ware mastered iron metallurgy. Unlike the producers of pre-EIA Ngovo ware, they no longer used polished stone axes and hoes. However, very little is known about the subsistence of Kitala ware manufacturers. They lived in a natural environment of open deciduous woods with access to tree species characteristic of wooded savannahs, such as *Bridelia* spp., and gallery forests, such as *Elaeis guineensis*, whose charred endocarps are abundant at Kitala site. So far, no evidence has been found for plant cultivation, let alone farming. However, the fertile alluvial lands of the nearby Bombe River do have a huge agricultural potential, which is still exploited for farming today and may have attracted settlers to grow food crops as early as the EIA. This needs further examination through rigorous archaeobotanical sampling.

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**Compliance with Ethical Standards**

**Conflict of Interest** The authors declare that they have no conflict of interest.

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