Grobnice halštatskih kneževa na lokalitetu Kaptol – Čemernica: Arheobotanički nalazi iz tumula III i XI

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Sadržaj

Contents

Izvorni znanstveni radovi

Original scientific papers

5 DOMAGOJ PERKIĆ
MARIO NOVAK
Tragovi prapovijesnih pokapanja ljudi u špiljama dubrovačkoga područja

DOMAGOJ PERKIĆ
MARIO NOVAK
Traces of prehistoric human burials in the caves of the Dubrovnik area

37 ŠIME VRKIĆ
NEDA KULENOVIĆ OCELIĆ
Prilog poznavanju prapovijesnih gradina na donjem toku rijeke Zrmanje

ŠIME VRKIĆ
NEDA KULENOVIĆ OCELIĆ
A contribution to the study of the prehistoric hillforts in the lower course of the River Zrmanja

73 ANA KONESTRA
GORANKA LIPOVAC VRKLJAN
BARTUL ŠILJEG
The assortment of ceramic building materials from the pottery workshop of *Sextus Me(u)tillius Maximus* at Crikvenica (Croatia)

ANA KONESTRA
GORANKA LIPOVAC VRKLJAN
BARTUL ŠILJEG
Asortiman građevinske keramike iz keramičarske radionice Sexta Me(u)tillia Maxima *u Crikvenici (Hrvatska)*

99 MIRJANA SANADER
MIRNA VUKOV
DOMAGOJ BUŽANIĆ
Promjena perspektive o ranim rimskim migracijama na Sredozemlju. Slučaj istočnoga Jadrana

MIRJANA SANADER
MIRNA VUKOV
DOMAGOJ BUŽANIĆ
A change of perspective on early Roman migrations in the Mediterranean. The case of the eastern Adriatic

117 DARIO HRUŠEVAR
KORALJKA BAKRAČ
SLOBODAN MIKO
NIKOLINA ILIJANIĆ
OZREN HASAN
MIRNA MAMIĆ
TATJANA PULJAK
ANITA VUC IĆ
KATARINA HUSNJAK MALOVEC
MARTINA WEBER
BOŽENA MITIĆ
Environmental history in Central Croatia for the last two millennia – vegetation, fire and hydrological changes under climate and human impact

DARIO HRUŠEVAR
KORALJKA BAKRAČ
SLOBODAN MIKO
NIKOLINA ILIJANIĆ
OZREN HASAN
MIRNA MAMIĆ
TATJANA PULJAK
ANITA VUC IĆ
KATARINA HUSNJAK MALOVEC
MARTINA WEBER
BOŽENA MITIĆ
Dvije tisuće godina okolišnih promjena na području središnje Hrvatske – vegetacija, požari i hidrologija utjecani klimatskim prilikama i ljudskim pritiskom

165 SINIŠA KRZNAR
TAMÁS HAJDU
Kasnosrednjovjekovna i ranonovovjekovna populacija iz Ivankova, istočna Hrvatska: rezultati (bio)arheološke analize

SINIŠA KRZNAR
TAMÁS HAJDU
Late medieval/early modern population from Ivankovo, eastern Croatia: the results of the (bio)archaeological analysis

Prethodno priopćenje

Preliminary report

195 RENATA ŠOŠTARIĆ
HRVOJE POTREBICA
RENATA BONIĆ BABIĆ
MARIJA MARTINOVIĆ
TAMARA NOVAK
Grobnice halštatskih kneževa na lokalitetu Kaptol – Čemernica: Arheobotanički nalazi iz tumula III i XI

RENATA ŠOŠTARIĆ
HRVOJE POTREBICA
RENATA BONIĆ BABIĆ
MARIJA MARTINOVIĆ
TAMARA NOVAK
Graves of Hallstatt Princes at Kaptol – Čemernica: Archaeobotanical Material from Tumuli III and XI

211 IVANA OŽANIĆ ROGULJIĆ
JERE DRPIĆ
Clavi coctiles iz Cibala (Vinkovci)

IVANA OŽANIĆ ROGULJIĆ
JERE DRPIĆ
Clavi coctiles *from* Cibalae *(Vinkovci)*

227 Upute autorima

Guidelines for contributors

Grobnice halštatskih kneževa na lokalitetu Kaptol – Čemernica: Arheobotanički nalazi iz tumula III i XI

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Prapovijesni arheološki lokalitet Kaptol za sada je najznačajnije željeznodobno nalazište na području sjeverne Hrvatske te je i epomnimni lokalitet istoimene najjužnije skupine halštatskoga kulturnog kompleksa. Nekropola na položaju Čemernica istraživana je od 1965. do 1971. godine, kada je istraženo 14 tumula. Nakon toga u tri su navrata provedena kompleksna revizijska istraživanja: 2007. godine bio je istražen tumul XI – najsjeverniji tumul na nekropoli Čemernica, nakon dvije godine tumul III, te 2016. tumul IV. U ovome radu po prvi puta prezentiramo rezultate arheobotaničkih istraživanja halštatskih tumula III i XI na položaju Kaptol – Čemernica. Flotirane su ukupno 674 litre sedimenta iz tumula III i XI te izdvojeno ukupno 16285 karboniziranih biljnih ostataka. U oba tumula apsolutno su najbrojniji nalazi žitarica (preko 90%). Zbog loše očuvanosti materijala, polovica nalaza žitarica determinirana je kao Cerealia *(krupnozrne žitarice), među bolje očuvanim nalazima u oba tumula prevladava pšenica (*Triticum*), a od izdvojenih tipova pšenica najbrojnija je obična ili krušna pšenica (*Triticum aestivum*). S obzirom na veliku količinu nalaza, prije svega žitarica, može se zaključiti kako je biljna komponenta grobnih rituala u starijem željeznom dobu imala puno veći značaj nego što se to do sada mislilo.*

Ključne riječi: tumuli, starije željezno doba, pogrebni rituali, žitarice, Hrvatska

The prehistoric archaeological site of Kaptol is the most significant Iron Age site in northern Croatia discovered to date. It has given its name to the southernmost group within the Hallstatt cultural complex. The necropolis at the location of Čemernica was excavated between 1965 and 1971, with 14 tumuli encompassed by the archaeological investigation. Thereafter, three rounds of complex revision excavations were conducted: in 2007, tumulus XI – the northernmost tumulus in the Čemernica necropolis – was excavated; two years later, tumulus III; and, in 2016, tumulus IV. This is the first presentation of the results of archaeobotanical research of Hallstatt tumuli III and XI at the Kaptol – Čemernica site. In total, 674 litres of sediment from tumuli III and XI were floated, resulting in the recovery of 16.285 carbonized plant remains. The overwhelming majority (more than 90%) of finds from both tumuli are those of cereals. Due to the poor preservation of the plant material, half of the cereals have been identified as Cerealia *(large-grained cereals). Wheat (*Triticum*) is predominant among the better-preserved remains from both tumuli, with common wheat (*Triticum aestivum*) being the most numerous among the types of wheat identified. In view of the large quantity of plant remains, predominantly cereals, the conclusion can be drawn that the plant component of the Early Iron Age burial ritual was much more important than we thought.*

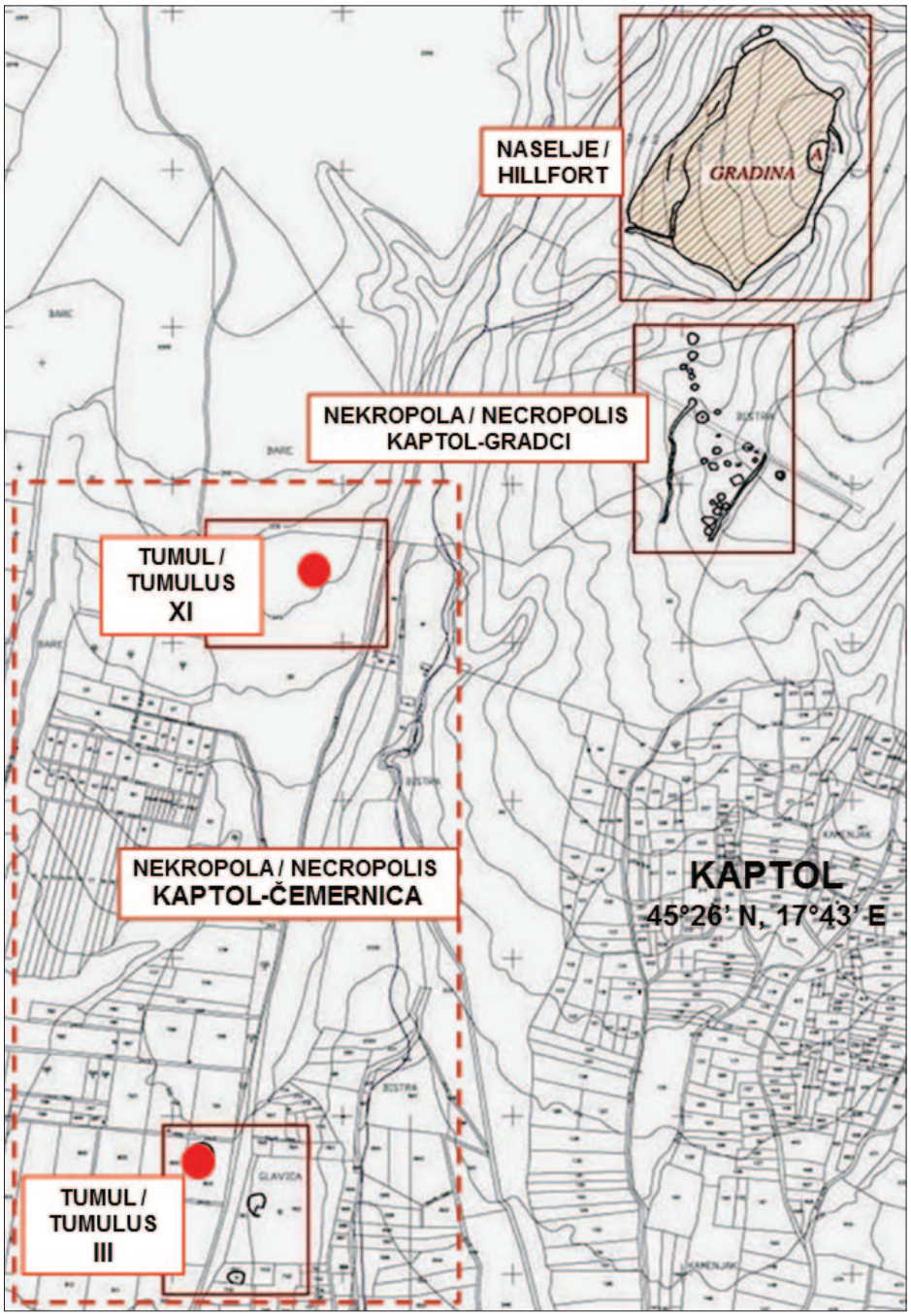
Key words: tumuli, Early Iron Age, burial ritual, cereals, Croatia

UVOD

Prapovijesni arheološki lokalitet Kaptol nalazi se u Požeškoj kotlini 13 km sjeveroistočno od Požege na obroncima južne strane Papuka. Uključuje naselje i nekropolu na položaju Gradca te nekropolu Čemernica nešto južnije između položaja Gradca i sela Kaptol (sl. 1). Sva tri nalazišta se okvirno datiraju u vrijeme starijega željeznog doba, odnosno između 8. i 4. st. pr. Kr. Nekropola na položaju Čemernica istraživana je od 1965. do 1971. godine (Vejvoda,

INTRODUCTION

The prehistoric archaeological site of Kaptol is located in the Požega Valley, 13 km north-east of Požega, on the southern slopes of Papuk. It consists of a settlement and necropolis at the position of Gradci, and the Čemernica necropolis located somewhat farther to the south, between Gradci and the village of Kaptol (Fig. 1). All three archaeological sites have been dated generally to the Early Iron Age, to the period between the 8th and 4th cent. BC. The



Sl. 1 Prikaz rasporeda pojedinih cjelina arheološkoga lokaliteta Kaptol te položaja istraživanih tumula III i XI nekropole Kaptol – Čemernica (prema: Potrebica 2013: 190; kartu doradila: R. Šoštarić)

Fig. 1 Distribution of units within the Kaptol archaeological site and locations of the excavated tumuli III and XI in the Kaptol – Čemernica necropolis (after: Potrebica 2013: 190; map refined by: R. Šoštarić)

Mirnik 1973; 1991). Tada je istraženo 14 tumula od kojih su se bogatstvom i vrijednošću nalaza izdvojile grobne cjeline pod tumulima IV i X, nazvane kneževski tumuli. Kaptolski kneževi bili su prvenstveno ratnici o čemu svjedoče pronađeni ostaci opreme: koplja, bojne sjekire, noževi, dijelovi konjske opreme. U većini grobova pronađeni su i brojni keramički ostaci od kojih se posebno ističu fine posude presvučene sjajnim slojem grafita koji ima daje poseban metalni sjaj (Potrebica 2013: 70). Kaptolski kompleks nalazišta za sada je najznačajnije željeznodobno nalazište na području sjeverne Hrvatske te je i epomnimni lokalitet istoimene najjužnije skupine halštatskoga kulturnog kompleksa (Egg, Kramer 2005: 3, Abb. 2.; Potrebica 2013: 73; 2019). Od 2000. godine na nalazištu Gradca provode se sustavna istraživanja nekropole i utvrđenoga naselja. Do sada je na nekropoli istraženo 17 tumula, a na naselju je istraženo 6 sondi. Svi nalazi upućuju da je ovaj prostor imao daleko veću važnost u nadregionalnim mrežama kontakata nego što su to ranija istraživanja dala naslutiti. Pronađeni su luksuzni predmeti iz udaljenih krajeva (od Sredozemlja do Alpa), a osim ranije utvrđene povezanosti sa srednjoeuropskim središtima, potvrđena je i bliska povezanost sa skupinama južno od Save (Donja Dolina, Glasinac), te u Podunavlju i Transdanubiji. Sve to potvrđuje ključan položaj željeznodobnoga Kaptola na razmeđi tri civilizacijska kruga: Panonije, Alpa i Balkana (Potrebica 2013: 73; Potrebica, Mavrović Mokos 2016: 60).

Istovremeno sa sustavnim istraživanjima nekropole i naselja na položaju Gradca, u tri navrata su provedena revizijska istraživanja tumula na položaju Čemernica. Prvo je 2007. bio istražen tumul XI, najsjeverniji tumul na nekropoli Čemernica (Potrebica 2008: 109–112), a nakon dvije godine istražen je tumul III (Potrebica 2010: 101–106). Posljednje revizijsko istraživanje na nekropoli Čemernica obavljeno je 2016. na tumulu IV u kojem je 1967. godine pronađen kneževski grob s grčko-ilirskom kacigom (Potrebica, Rakvin 2019). Revizijska istraživanja bila su kompleksnija od ranijih i uključivala su različita interdisciplinarna područja, između ostalih i arheobotaniku, čiji rezultati će biti prezentirani u ovome radu.

Tumul III

Tumul III prvi je puta istraživan 1967. kada je ustanovljeno da *skriva kultni objekt sličan onom u tumulu br. I, tj. da tu postoji rov ispunjen ugljenom, ograđen na više mjesta suhozidnom konstrukcijom*…. Kako se sumnjalo da je riječ o najvećem sačuvanom tumulu kojega je istraživao još vlastelin M. Turković, a otkrivena konstrukcija podsjećala je na „kultnu konstrukciju" ispod tumula I, V. Vejvoda i I. Mirnik odustali su od daljnjega istraživanja (Vejvoda, Mirnik 1991: 12, 14, 20, shema 5). Revizijska istraživanja iz 2007. pokazala su da je tumul III sadržavao monumentalnu drvenu središnju komoru unutarnjih dimenzija oko 5 x 5 metara, obloženu složenom konstrukcijom od kamena i drveta, do koje je s juga vodio ritualni hodnik (dromos) dužine 8 metara (sl. 2) Ostaci tri reda stupova (srednji red od tri, a vanjski od pet stupova) koji se protežu u smjeru sjever – jug i sugeriraju krov na dvije vode koji je jednako padao prema istoku i

Čemernica necropolis was excavated between 1965 and 1971 (Vejvoda, Mirnik 1973; 1991). During the campaign, 14 tumuli were investigated, and the graves under tumuli IV and X – subsequently described as 'princely graves' – stood out with the richness and value of the material discovered in them. The Kaptol princes were first and foremost warriors, as evidenced by the remains of their equipment: spears, battle axes, knives, elements of horse gear. The majority of graves also contained remains of pottery; particularly prominent among them are fine-pottery vessels coated with graphite, which gives them a specific metallic sheen (Potrebica 2013: 70). At present, the Kaptol archaeological complex is the most important Iron Age site in northern Croatia, and has given its name to the southernmost group within the Hallstatt cultural complex (Egg, Kramer 2005: 3, Fig. 2; Potrebica 2013: 73; 2019). Systematic excavation of the necropolis and fortified settlement at the site of Gradci has been conducted since 2000. To date, 17 tumuli have been investigated, and six test pits excavated at the location of the settlement. All finds indicate that the site was much more important within the supra-regional network of contacts than suggested by the earlier excavations. The discovered material includes luxury items brought from far-away lands (ranging from the Mediterranean to the Alps), and, on top of the links with the Central European centres that had been established earlier, close connections have been confirmed with cultural groups located south of the River Sava (Donja Dolina, Glasinac), in the Danube Region and Transdanubia. All of this substantiates the conviction that, in the Iron Age, Kaptol's was a key position at the crossroads of three cultural circles: Pannonia, the Alps and the Balkans (Potrebica 2013: 73; Potrebica, Mavrović Mokos 2016: 60).

At the time when the Gradci necropolis and settlement were systematically excavated, three rounds of revision excavations were conducted on tumuli at the site of Čemernica. First, in 2007, tumulus XI – the northernmost tumulus within the Čemernica necropolis – was investigated (Potrebica 2008: 109–112), and two years later tumulus III (Potrebica 2010: 101–106). The latest revision excavation at the Čemernica necropolis took place in 2016, on tumulus IV, where in 1967 a princely grave had been discovered, containing a Greco-Illyrian helmet (Potrebica, Rakvin 2019). The revision excavations were more complex than the previous campaigns and included various interdisciplinary fields, including archaeobotany. The results of those analyses are presented in this paper.

Tumulus III

Tumulus III was excavated for the first time in 1967, when it was established that *it hid a cult object similar to the one found in tumulus I, i.e. that there was a trench filled with charcoal, surrounded in several places with a dry-stone structure*…. Influenced by the assumption that this was the largest preserved tumulus that had been explored earlier by squire M. Tuković, and by the fact that the uncovered structure reminded them of the "cult structure" found under tumulus I, V. Vejvoda and I. Mirnik discontinued further excavation (Vejvoda, Mirnik 1991: 12, 14, 20, schematic 5).

zapadu i nije bio prekriven kamenom. Dromos je također bio drvena konstrukcija s ravnim drvenim krovom, ojačana s tri para stupova i obložena suhozidom s bočnih strana. S južne strane komore oko dromosa protezalo se kameno polukružno popločenje. Unatoč monumentalnoj konstrukciji, u samoj komori nije bilo nikakvih nalaza osim tri keramička lonca. Radi se o jednome manjem loncu s jako grafitiranom crnom površinom i dva crvena lonca na kojima su vjerojatno vidljivi tragovi grafitnoga slikanja (Potrebica 2010: 103–104, sl. 5). Isto tako nisu uočeni niti bilo kakvi tragovi pljačke. U komori je dobro sačuvan karbonizirani sloj drvene oplate komore, ali nema nikakvih tragova posipanja ostataka sa spališta po podu komore što je uobičajen postupak za ukope na Kaptolu. Taj je materijal prosut po podu dromosa, a na samome prijelazu iz dromosa u grobnu komoru pronađena je urna s kostima. Iz svega je razvidno da je u arheobotaničkom kontekstu najzanimljiviji dromos koji je cijelom dužinom bio prekriven garom i materijalom

The 2007 revision excavation has shown that tumulus III covered a monumental central wooden chamber encased in a complex structure consisting of stone and wood, with internal dimensions of 5 x 5 m, and a ritual access corridor (or dromos) 8 m long that led to it from the south (Fig. 2). The remains of three rows of posts (the central row consisting of three posts, and lateral rows of five) set in a north-south direction suggest that there was a pitched roof which sloped towards the east and west, and was not covered with stone. The dromos was also a wooden structure, covered with a flat wooden roof, reinforced with three pairs of posts and encased in dry-stone wall along the sides. On the southern side of the chamber, the ground around the dromos was paved with stone. Despite its monumental structure, the chamber contained only three ceramic pots and no other material: a smallish pot with a black surface, intensely coated with graphite, and two red pots displaying what are probably traces of graphite drawings

Sl. 2 Kaptol – Čemernica, tumul III, pogled iz zraka na grobnu komoru i dromos (snimio: H. Potrebica)

Fig. 2 Kaptol – Čemernica, tumulus III: overhead view of the burial chamber and dromos (photo by: H. Potrebica)

sa spališta u kojem su pronalaženi uglavnom vrlo fragmentirani i amorfni komadi bronce, fragmenti kostiju i keramike te dosta karboniziranih žitarica vidljivih golim okom (Potrebica 2010). Ovakve monumentalne pravokutne konstrukcije s dromosom nalazimo u različitim kulturnim kontekstima istočnoga halštatskog kruga, ali u veoma malome broju (Egg 1996: 10, Abb. 5). Obično su predstavljale ukope vodećih pojedinaca u zajednicama starijega željeznog doba, ali u slučaju tumula III na nekropoli Čemernica gotovo potpuni nedostatak nalaza nije rezultat pljačke nego stanje u kojem je komora ostavljena po završetku korištenja. Stoga možemo samo nagađati o namjeni ovoga konkretnog spomenika unatoč urni pronađenoj na ulazu u komoru. To ne umanjuje činjenicu da je riječ o impresivnome objektu koji u smislu arhitekture pripada među najbolje sačuvane spomenike te vrste u Europi (Potrebica 2013: 71).

Tumul XI

Tumul XI, nazvan i Volarska glavica, izdvojen od svih tumula nekropole i nalazi se na njezinu sjevernome rubu, na prvim obroncima Papuka. Riječ je o jednome od većih tumula na ovoj nekropoli koji je smješten na neobradivome terenu i nikad nije uzoran. Upravo zbog toga je zemlja bila izuzetno tvrda, pa su prvi istraživači 1971. godine po nalasku ulomaka srednjovjekovne keramike u nasipu tumula odustali od istraživanja ovoga groba (Vejvoda, Mirnik 1991: 12–13, 16, 24, shema 13–14). Novija istraživanja, koja se provedena tijekom 2007. godine, otkrila su monumentalnu drvenu grobnu komoru obzidanu kamenom. U komori je pronađen najbogatiji komplet posuđa na Čemernici koji je, između ostaloga, uključivao tri velika globularna lonca na nozi, tri plitice na nozi, tri keramičke situle, par lonaca s izvijenim rubom od crvene keramike s grafitno slikanim geometrijskim ukrasom preko kojega su nalijepljene kositrene lamele, poput onih iz Martijanca, crni grafitirani lonac također ukrašen kositrenim lamelama, crni lonac ukrašen okruglim brončanim naljepcima promjera oko 7 mm, fina bikonična grafitirana zdjelica s ručkom, crne boje i tankih stjenki i mnoge druge fragmentirane posude (Potrebica 2008: 109–112; 493). Možda najzanimljiviji nalazi cijele grobne cjeline su par malih crnih askosa bez ručke sličnih sotinskome primjerku (Šimić 2004: 58, sl. 19) i kernos. Među najvrijednije metalne nalaze svakako pripada savršeno očuvana golema višeglava brončana igla. Slične igle su već pronađene na nekropoli Čemernica u kneževskome grobu s grčko-ilirskom kacigom pod tumulom IV i obično su indikacija ukopa muškaraca najvišega statusa (Potrebica, Rakvin 2019: 46, 56, 78, T. 6: 1–2). Pronađen je i fragment kamenoga brusa lepezastoga oblika poput onoga pronađenoga u kneževskom tumulu 6 na nalazištu Kaptol – Gradci te pet fragmentiranih željeznih ražnjeva s alkom kakvi su karakteristika bogatih grobnih cjelina sjeverne Italije koji su bili položeni preko izuzetno već spomenutoga bogatog kompleta keramičkih posuda (Teržan 2004: 168–182, Fig. 12; Potrebica 2013: 120–121). Iako nema sumnje da je riječ o bogatome muškom grobu, uočljiv je nedostatak oružja (Potrebica 2013: 108).

(Potrebica 2010: 103–104, Fig. 5). No signs of looting were observed. In the chamber, the carbonized layer of the chamber's wooden casing had been well preserved, but there were no traces of scattered remains from the pyre on the chamber floor, which had been customary for the Kaptol burials. Instead, the remains had been scattered on the floor of the dromos, while an urn containing bones was discovered at the spot where the dromos widens into the burial chamber. All of this clearly suggests that, from an archaeobotanical perspective, the dromos is the most interesting element, since it was covered in all of its length with soot and remains from the pyre, which contained very fragmented and amorphous pieces of bronze, bone and pottery fragments, and a substantial quantity of carbonized cereals visible to the naked eye (Potrebica 2010). Such monumental rectangular structures with dromos have been found in various cultural contexts within the Eastern Hallstatt Circle, but in very small numbers (Egg 1996: 10, Fig. 5). Usually, they marked the graves of leading figures in the Early Iron Age communities; but, in the case of tumulus III in the Čemernica necropolis, the almost complete lack of archaeological evidence is not a result of looting, but the condition in which the chamber was left after it had been used. Thus, we can only speculate about the purpose of this monument, regardless of the urn discovered at the entrance to the chamber. However, this does not diminish the fact that this impressive structure belongs among the best-preserved architectural monuments of its kind in Europe (Potrebica 2013: 71).

Tumulus XI

Tumulus XI, also called Volarska Glavica ("Ox-driver's Hill"), is separated from all other tumuli and stands at the northern edge of the necropolis. This is one of the larger tumuli within the necropolis, located in an area that is not suitable for cultivation, and for this reason it had never been ploughed. As a result, the soil that covered it was exceptionally hard, and in 1971, when the first investigators found some mediaeval pottery sherds in the tumulus mantle, they gave up on further excavation of this grave (Vejvoda, Mirnik 1991: 12–13, 16, 24, schematics 13–14). The recent excavation conducted in 2007 revealed a monumental wooden burial chamber encased in stone. The chamber contained the richest set of dishes discovered at Čemernica, which included, inter alia, three large globular footed pots, three small footed bowls, three ceramic situlae, several red ceramic pots with everted rims and geometric motif painted with graphite and tin lamellae affixed on top (similar to the pots from Martijanec), a black graphited pot decorated with tin lamellae, a black pot decorated with circular bronze appliques of around 7 mm in diameter, a fine biconical graphited bowl of thin black walls with a handle, and a number of other fragmented vessels (Potrebica 2008: 109–112, 493). The most interesting find in this grave could be a pair of small black askoi without handles, similar to the one recovered at Sotin (Šimić 2004: 58, Fig. 19) and a kernos. The most valuable metal artefacts include a perfectly preserved huge multiheaded pin. Similar pins had been discovered before at the Čemernica necropolis, in the princely grave under tumulus

Sl. 3 Kaptol – Čemernica, tumul XI, detalji grobne komore (snimio: H. Potrebica)
Fig. 3 Kaptol – Čemernica, tumulus XI: details of the grave chamber (photo by: H. Potrebica)

Do sada su, za području Hrvatske, objavljene arheobotaničke analize uzoraka iz nekoliko halštatskih tumula s položaja Kaptol – Gradci (Šoštarić et al. 2007; 2016; 2017). Na istočno-alpskome halštatskom području Europe, kojem pripada i Kaptol, arheobotanička istraživanja su rijetka ili su malobrojni arheobotanički nalazi na istraživanim lokalitetima (usp. Hladíková, Kmetová 2019).

U ovome radu po prvi put prezentiramo rezultate arheobotaničkih istraživanja halštatskih tumula na položaju Kaptol – Čemernica i to tumula III i XI.

MATERIJAL I METODE

Tijekom 2009. godine pod vodstvom H. Potrebice na prapovijesnom lokalitetu Kaptol – Čemernica provedeno je revizijsko istraživanje i otvoren je tumul III. Arheobotanički uzorci uzeti iz tumula III nalazili su se u prilaznome ritualnom hodniku, odnosno dromosu, koji je cijelom dužinom bio prekriven garom i materijalom sa spališta te zamjetnom količinom karboniziranih žitarica. Arheobotanički materijal iz tumula XI prikupljen je tijekom 2007. godine prilikom arheoloških iskapanja pod vodstvom H. Potrebice. Iskapanje je pratilo i sustavno uzorkovanje, između ostaloga i arheobotaničkih uzoraka.

Na oba tumula istraživanje je započelo potpunim uklanjanjem vegetacije s površine tumula što je omogućilo jasniju sliku prostora na plaštu tumula. U prvoj fazi zahvata istraženi su nasipi tumula radi definiranja utvrđenih i eventualno dodatnih perifernih konstrukcija. Na tumulu XI kon-

IV containing the Greco-Illyrian helmet, and they are usually indicators that the person buried was a man of the highest status (Potrebica, Rakvin 2019: 46, 56, 78, Pl. 6: 1–2). Further finds include a fan-shaped whetstone fragment, similar to the one discovered in the princely tumulus 6 at the Kaptol – Gradci site, and five fragmented iron spits with ring (that are typical of rich graves of northern Italy), which were laid over the exceptionally rich pottery set described above (Teržan 2004: 168–182, Fig. 12; Potrebica 2013: 120–121). Although there is no doubt that this was a rich male burial, the lack of weapons is conspicuous (Potrebica 2013: 108).

As regards the territory of Croatia, archaeobotanical analyses of samples recovered from several Hallstatt tumuli at Kaptol – Gradci have been published (Šoštarić et al. 2007; 2016; 2017). In the Eastern Alpine Hallstatt territory, which also includes Kaptol, archaeobotanical research is scarce, and the investigated sites have yielded archaeobotanical finds in small quantities (cf. Hladíková, Kmetová 2019).

This paper is the first presentation of the results of archaeobotanical research on Hallstatt tumuli III and XI at the Kaptol – Čemernica site.

MATERIAL AND METHODS

In 2009, a revision excavation was conducted at the prehistoric site of Kaptol – Čemernica under the leadership of H. Potrebica. On that occasion, tumulus III was opened. The archaeobotanical material recovered from tumulus III was found in the ritual access corridor, or dromos, which was covered with soot and remains from the pyre in all of its length, and also with a significant quantity of carbonized

trolni profili postavljeni su tako da budu prilagođeni ranijim istraživanjima, odnosno da u najvećoj mogućoj mjeri uključuju kontrolni profil između dvije sonde iz 1971. godine (Potrebica 2008). Iskopavanje je provođeno po stratigrafskim jedinicama paralelno u svakome kvadrantu između kojih je ostavljan kontrolni profil kako bi se mogli jasno vidjeti i dokumentirati pojedini slojevi. Na kraju se na isti način uklonio i kontrolni profil. Kako se radilo o kontinentalnome lokalitetu s promjenjivim i načelno lošim uvjetima za očuvanje organskoga materijala, uzimane su veće količine uzoraka (minimalno 10 litara sedimenta), koje su se procesuirale već na terenu tijekom iskopavanja standardnom metodom flotacije uz pomoć flotacijskoga uređaja (usp. Pearsall 2000: 14–59). Na taj način su izdvojene jedna teška i dvije lake frakcije (na mrežama veličine 1 i 0,5 mm), koje su se nakon sušenja pakirale u plastične vrećice s preciznim signaturama i dostavile u Botanički zavod PMF-a.

Daljnje analize napravljene su u Arheobotaničkome laboratoriju Botaničkoga zavoda Biološkoga odsjeka PMF-a u Zagrebu. Uzorci su dodatno suho prosijani kroz dva sita veličina pora 2,5 i 1 mm. Time su se odvojile tri frakcije svakoga uzorka što omogućava brže izdvajanje i sortiranje biljnih ostataka te precizniju i kompletniju determinaciju biljnih ostataka. Tako prosijani uzorci su izdvajani pomoću binokularne lupe povećanja 7–45x. Izolirani i sortirani biljni ostaci su potom determinirani uz pomoć literaturnih izvora (Jacomet 2010; Beijerinck 1976; Cappers, Bekker, Jans 2012; Kohler-Schenider 2001) te recentne karpološke zbirke Botaničkoga zavoda PMF-a u nastajanju. Nomenklatura je usklađena prema Flora Croatica Database (Nikolić 2018). Na kraju identifikacije, biljni materijal je fotografiran kamerom digitalnoga mikroskopa DinoLite. Nakon kvantitativne analize, sortiranja i označavanja, sav izoliran biljni materijal pohranjen je u Botaničkome zavodu PMF-a i dostupan je na uvid.

REZULTATI I RASPRAVA

Na položaju Kaptol – Čemernica flotirano je ukupno 328 litara sedimenta iz tumula III i izdvojeno ukupno 3915 karboniziranih biljnih ostataka (Tab. 1 i 3), dok je iz tumula XI flotirano ukupno 346 litara sedimenta i izdvojeno ukupno 12370 karboniziranih biljnih ostataka (Tab. 2–3). Vrlo mala količina pronađenih nekarboniziranih biljnih ostataka nije se uzimala u obzir, jer se smatra recentnom kontaminacijom (usp. Šoštarić et al. 2007).

Gotovo sav izolirani i identificirani biljni materijal pripada skupini kultiviranih žitarica: 99,56% u tumulu III i 96,04% u tumulu XI. Biljni ostaci sačuvani su u lošem stanju zbog čega je bila vrlo otežana njihova determinacija, pa 49,87% žitarica iz tumula III i 53% žitarica iz tumula XI pripadaju kategoriji *Cerealia*, tj. krupnozrnim kultiviranim žitaricama (Tab. 3–4; sl. 4a, 5–6).

Od biljnih ostataka koji su se mogli preciznije identificirati, velika većina pripada različitim tipovima pšenice (*Triticum*), no zbog loše očuvanosti veliki postotak zrna pšenice pripada različitim kombiniranim i cf. skupinama. Od tipova žitarica koje su se mogle precizno identificirati, u tumulu III

cereals. The archaeobotanical material from tumulus XI was collected in 2007, during the archaeological investigation led by H. Potrebica. The excavation was accompanied by systematic sampling, inter alia, of archaeobotanical material.

The investigation of both tumuli began with removal of all of the vegetation from the surface of the tumuli, resulting in a clearer picture of the space on the tumulus mantle. In the first phase of the excavation, the tumulus fills were investigated, with a view to defining the fortified structures and possible additional peripheral structures. On tumulus XI, the profile baulks were set so as to correspond to the earlier excavations, that is, to include, as far as possible, the profile baulk left between the two test pits in 1971 (Potrebica 2008). The excavation was conducted by stratigraphic layers, in parallel in all of the quadrants, with profile baulks left between them to allow clear views of individual strata and their recording. Eventually, the profile baulks were removed in the same manner. In view of the fact that, in this inland site, conditions for the preservation of organic material vary, and are generally poor, large quantities of samples (at least 10 l of sediment) were collected and processed while still on site, using a flotation device and the standard flotation method (cf. Pearsall 2000: 14–59). This resulted in one heavy and two light fractions (on screens of 1 mm and 0.5 mm), which were dried and then packed in plastic bags with precise labels, and transported to the Division of Botany of the Zagreb Faculty of Natural Science.

Further analyses were conducted in the Archaeobotanical Laboratory of the Division of Botany at the Department of Biology of the Zagreb Faculty of Natural Science. The samples were dry-sieved through two sieves of 2.5 mm and 1 mm. This resulted in the separation of three fractions of each sample, which made it possible to isolate and sort plant remains faster, and to identify them more precisely and completely. The plant remains thus sieved were isolated using a binocular magnifier with magnification 7–45x. The isolated and sorted plant remains were then identified using the following literary sources (Jacomet 2010; Beijerinck 1976; Cappers, Bekker, Jans 2012; Kohler-Schneider 2001), and the recent carpological collection of the Division of Botany at the Zagreb Faculty of Natural Science (currently being compiled). The nomenclature has been harmonized with the Flora Croatica Database (Nikolić 2018). Once identified, the plant material was photographed with the camera of a Dino-Lite digital microscope. After the quantitative analysis, sorting and marking, all the isolated plant material was stored in the Division of Botany of the Zagreb Faculty of Natural Science, where it is available for inspection.

RESULTS AND DISCUSSION

At the Kaptol – Čemernica site, a total of 328 litres of sediment collected from tumulus III was floated, and a total of 3915 carbonized plant remains isolated (Tabs. 1 and 3), while 346 litres of sediment from tumulus XI was floated, resulting in a total of 12,370 carbonized plant remains isolated (Tabs. 2–3). The very small quantity of identified non-carbonized plant remains was not taken into consideration, as those were considered to be a result of recent contamination (cf. Šoštarić et al. 2007).

Nearly all of the isolated and identified plant material

najbrojnija je obična ili krušna pšenica (*Triticum aestivum*, 396 nalaza; sl. 4c), zatim slijede pravi pir (*Triticum spelta*, 293; sl. 4b) i dvozrni pir (*Triticum dicoccum*, 288; sl. 4f). Vrlo je slično i u tumulu XI u kojem je također najbrojnija obična ili krušna pšenica (*Triticum aestivum*, 2269 nalaza), zatim dvozrni pir (*Triticum dicoccum*, 756) i pravi pir (*Triticum spelta*, 714) (Tab. 3–4). lako se morfološki, na temelju zrna, ne mogu razlikovati različiti tipovi nepljevičastih pšenica (*Triticum aestivum, T. durum* i *T. turgidum*), s obzirom da se radi o kontinentalnome lokalitetu za koji je karakteristična nešto hladnija i humidnija klima, pretpostavka je da se radi o običnoj ili krušnoj pšenici (*T. aestivum*) koja je najbolje prilagođena takvome podneblju. Zbog toga se u tekstu i prilozima spominje *Triticum aestivum*, a ne *Triticum aestivum/durum/turgidum*. Ipak, treba uzeti u obzir i mogućnost da dio nađenih ostataka možda pripada i nepljevičastome tipu *Triticum durum/turgidum*. On je uobičajeniji za toplija i suša podneblja, ali su neka istraživanja pokazala da nepljevičasti tetraploidi mogu uspijevati i u uvjetima hladne i vlažne klime (usp. Kirleis, Fischer 2014). Ostali tipovi žitarica (*Triticum monococcum*, sl. 4e; cf. *Hordeum vulgare*, *Panicum miliaceum, Secale cereale*) pojavljuju se u vrlo malome broju. Svakako treba istaknuti i nalaz pšenice *Triticum aestivum* subsp. *compactum* iz tumula XI (Tab. 3–4; sl. 4d, 5–7), jer je to prvi prapovijesni nalaz ovoga tipa pšenice na području Hrvatske. Od ostalih biljnih ostataka koje treba spomenuti belongs to the group of cereal grains: 99.56% in tumulus III, and 96.04% in tumulus XI. The poor condition of the preserved plant remains greatly exacerbated their identification, and thus 49.87% of cereal grains from tumulus III and 53% of cereal grains from tumulus XI belong to the category *Cerealia*, i.e. large-grained cereals (Tabs. 3–4; Figs. 4a, 5–6).

Among the plant remains that could be identified more precisely, the vast majority belong to various types of wheat (*Triticum*); but, due to their poor preservation, a large percentage of wheat grains belong to various combined and cf. groups. Among those cereal types that could be identified precisely, in tumulus III the most numerous was common wheat (*Triticum aestivum*, 396 finds; Fig. 4c), followed by spelt (*Triticum spelta*, 293; Fig. 4b) and emmer (*Triticum dicoccum*, 288; Fig. 4f). The situation was very similar in tumulus XI, where common wheat was also the most frequent (*Triticum aestivum*, 2269 finds), followed by emmer (*Triticum dicoccum*, 756) and spelt (*Triticum spelta*, 714) (Tabs. 3–4). Although various types of naked wheat (*Triticum aestivum, T. durum* and *T. turgidum*) cannot be distinguished morphologically, on the basis of the grain, given that this is an inland site typical of a relatively cold and humid climate, presumably the material belongs to common wheat (*T. aestivum*), which is best adapted to such an environment. For this reason, the text and appendices mention *Triticum aestivum*, rather than *Triticum aestivum/durum/turgidum*.

Kaptol – Čemernica tumul / tumulus III		
UZORAK/SAMPLE	KOLIČINA UZORKA/SAMPLE QUANTITY (u litrama/in liter)	BROJ BILJNIH NALAZA/NUMBER OF PLANT FINDS
U-37	102	2996
U-38	32	3
U-45	92	52
U-46	70	829
U-49	? (bez signature) / ? (without signature)	32
U-57	16	3
UKUPNO/TOTAL	328	3915

Tab. 1 Kaptol – Čemernica, pregled analiziranih uzoraka, količina flotiranih sedimenata te broja izoliranih biljnih ostataka iz tumula III (izradila: R. Šoštarić)

Tab. 1 Kaptol – Čemernica, overview of analysed samples, quantity of floated sediments and number of plant remains isolated from tumulus III (made by: R. Šoštarić)

Kaptol – Čemernica tumul / tumulus XI		
UZORAK/SAMPLE	KOLIČINA UZORKA/SAMPLE QUANTITY (u litrama/in liter)	BROJ BILJNIH NALAZA/NUMBER OF PLANT FINDS
U-44	10	2
U-49	123	1811
U-54	10	5
U-56	97	9961
U-57	10	247
U-59	86	344
UKUPNO/TOTAL	346	12370

Tab. 2 Kaptol – Čemernica, pregled analiziranih uzoraka, količina flotiranih sedimenata te broja izoliranih biljnih ostataka iz tumula XI (izradila: R. Šoštarić)

Tab. 2 Kaptol – Čemernica, overview of analysed samples, quantity of floated sediments and number of plant remains isolated from tumulus XI (made by: R. Šoštarić)

Svojta	EK	Kaptol-Čemernica, Tumul III	Kaptol-Čemernica, Tumul XI	Kaptol-Čemernica, ukupno
Agrostemma githago L., sjemenka/seed	KR	16	4	**20**
cf. *Atriplex* sp., oraščić/nutlet			1	**1**
cf. *Avena sativa L.,* pšeno/grain	K-Ž	23	46	**69**
Bromus secalinus L., pšeno/grain	KR	1	167	**168**
Bromus sp., pšeno/grain			4	**4**
Cerealia, pšeno/grain	K-Ž	1944	6297	**8241**
Chenopodium polyspermum L., oraščić/nutlet	KR		1	**1**
Chenopodium sp., oraščić/nutlet	KR		1	**1**
Corylus avellana L., fragment oraha/nut shell fragment	SP		2	**2**
cf. *Hordeum vulgare* L., pšeno/grain	K-Ž		45	**45**
Lapsana communis L. roška/achene	KR		1	**1**
Lens culinaris Medik., sjemenka/seed	K-M		1	**1**
Panicum miliaceum L., pšeno/grain	K-Ž		3	**3**
Poaceae, pšeno/grain, fragm. pšena/grain fragment, pljeva/glume	K-Ž		100	**100**
Secale cereale L., pšeno/grain	K-Ž		13	**13**
cf. Secale cereale L., pšeno/grain	K-Ž	1	22	**23**
Triticum aestivum L., pšeno/grain	K-Ž	396	2269	**2665**
Triticum cf. *aestivum* L., pšeno/grain	K-Ž	6	645	**651**
Triticum aestivum L. subsp. *compactum* (Host) Mackey, pšeno/grain	K-Ž		60	**60**
Triticum aestivum L./T. spelta L., pšeno/grain	K-Ž		23	**23**
Triticum dicoccum Schrank., pšeno/grain	K-Ž	288	756	**1044**
Triticum dicoccum Schrank., pljeva/glume	K-Ž		7	**7**
Triticum cf. *dicoccum* Schrank., pšeno/grain	K-Ž	1	4	**5**
Triticum dicoccum Schrank./*T. spelta* L., pšeno/grain	K-Ž	132	417	**549**
Triticum monococcum L., pšeno/grain	K-Ž	69	6	**75**
Triticum cf. *monococcum* L., pšeno/grain	K-Ž		4	**4**
Triticum cf. *monococcum* L., pljeva/glume	K-Ž		2	**2**
Triticum spelta L., pšeno/grain	K-Ž	293	714	**1007**
Triticum spelta L., pljeva/glume	K-Ž		35	**35**
Triticum cf. *spelta* L., pšeno/grain	K-Ž	1	7	**8**
Triticum sp., pšeno/grain	K-Ž	744	506	**1250**
Indet.			207	**207**
Ukupno:		**3915**	**12370**	**16285**

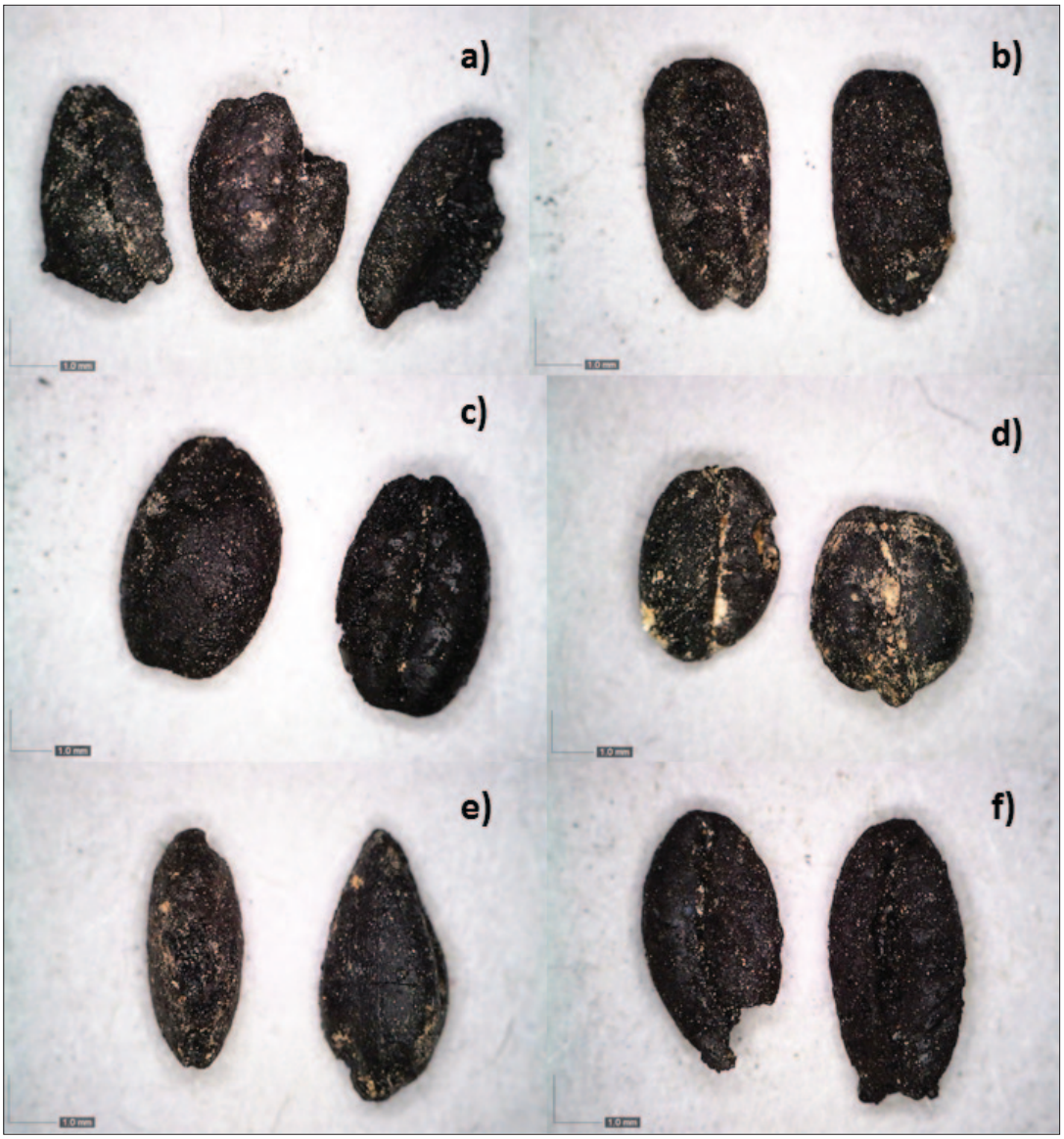
Tab. 3 Kaptol – Čemernica, usporedni prikaz vrste i količine biljnih ostataka nađenih u tumulima III i XI (EK: ekološka grupa; K-M: kultivirana biljka – mahunarka; K-Ž: kultivirana biljka – žitarica; KR: korovna i/ili ruderalna biljka; SP: samonikli plod iz prirode) (izradila: R. Šoštarić)

Tab. 3 Kaptol – Čemernica, comparative overview of types and quantities of plant remains recovered from tumuli III and XI (EC: environmental group; K-M: cultivated plant – pulses; K-Ž: cultivated plant – cereals; KR: weed and/or ruderal plant; SP: wild fruit from nature) (made by: R. Šoštarić)

pojavljuje se tek jedan nalaz sjemenke leće (*Lens culinaris*), mali broj slučajnih korovnih primjesa u žitaricama (Tab. 3–4) te dva fragmenta lješnjaka (*Corylus avellana*).

Zbog loše očuvanosti biljnih ostataka, determinaciju pojedinih svojti, naročito u skupini pšenica, treba uzeti s rezervom. To, međutim, ne utječe na činjenicu da su žitarice, i to prije svega – pšenica, apsolutno dominantne u nalazima,

Nonetheless, we should not disregard the possibility that some of the remains belong to the naked type *Triticum durum/turgidum*. It is more common in warmer and drier zones, but some research has shown that naked tetraploids can also thrive in cold, humid climate (cf. Kirleis, Fischer 2014). Other wheat types (*Triticum monococcum*, Fig. 4e; cf. *Hordeum vulgare*, *Panicum miliaceum, Secale cereale*) appea-



Sl. 4 Kaptol – Čemernica, karbonizirani biljni ostaci iz tumula III i XI: a) *Cerealia*; b) *Triticum spelta*; c) *Triticum aestivum*; d) *Triticum aestivum* subsp. *Compactum*; e) *Triticum monococcum*; f) *Triticum dicoccum* (snimila: R. Šoštarić)

Fig. 4 Kaptol – Čemernica, carbonized plant remains from tumuli III and XI: a) Cerealia; b) Triticum spelta; c) Triticum aestivum; d) Triticum aestivum subsp. compactum; e) Triticum monococcum; f) Triticum dicoccum (photo by: R. Šoštarić)

što pokazuje njihovu važnost u pogrebnome ritualu pokapanja pokojnika visokoga društvenog statusa.

Na geografskom području koje je obuhvaćala halštatska kultura do sada su, prema dostupnoj literaturi, sustavna arheobotanička istraživanja nekropola vrlo rijetka (usp. Hladíková, Kmetová 2019), a u Hrvatskoj su vršena samo na položaju Kaptol – Gradci (Šoštarić et al. 2016; 2017). Kada se usporede rezultati istraživanja ovih dviju nekropola, ali i drugih lokaliteta istočno-alpskoga europskog područja (naročito Kleinklein – Kröllkogel, Austrija, koji ima nešto veću količinu botaničkih nalaza; Hladíková, Kmetová 2019), uočava se velika sličnost u činjenici da u nalazima apsolutno dominiraju žitarice, i to prije svega – pšenica, te da se u puno manjem broju, ponekad samo u tragovima, pojavljuju i tzv. voćni prilozi – ostaci različitih karboniziranih plodova sakupljenih u vrlo malim količinama. Nalaz koji treba istaknuti je *Triticum aestivum* subsp. *compactum* iz tumula XI (Tabl. 3–4; Sl. 4d, 5–7), budući da je to prvi prapovijesni nalaz ove vrste pšenice na hrvatskom području. Od ostalih biljnih ostataka vrijedi spomenuti samo jedan nalaz sjemena leće (*Lens culinaris*), manji broj korova slučajno asociranih sa žitnim zrnjem (Tabl. 3–4), te dva fragmenta lješnjaka (*Corylus avellana*).

Due to the poor preservation of the plant remains, the identification of single taxa should be taken with caution. This, however, does not change the fact that cereal grains, primarily wheat, are absolutely dominant among the discovered plant material, which testifies to their importance in the burial ritual of the interment of a member of a high social class.

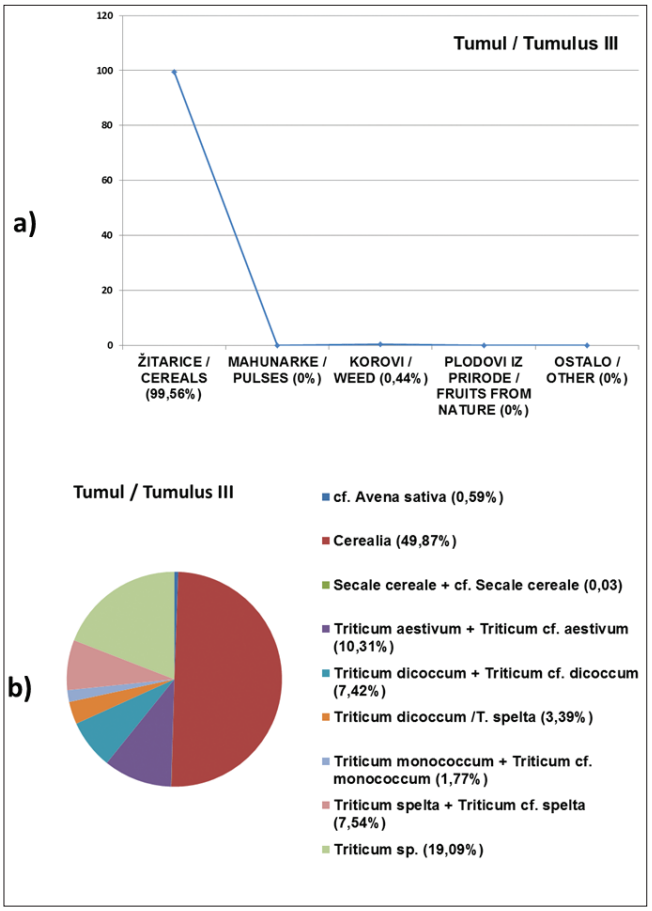
Svojta / Taxa	Kaptol – Čemernica, tumul / tumulus III	%	Kaptol – Čemernica, tumul / tumulus XI	%	Kaptol – Čemernica, ukupno / total	%
ŽITARICE / CEREALS	3898	99,56	11881	96,04	**15779**	**96,49**
cf. *Avena sativa*, pšeno/grain	23	0,59	46	0,39	**69**	**0,44**
Cerealia, pšeno/grain	1944	49,87	6297	53,00	**8241**	**52,23**
cf. *Hordeum vulgare*, pšeno/grain			45	0,38	**45**	**0,29**
Panicum miliaceum, pšeno/grain			3	0,03	**3**	**0,02**
Secale cereale + *cf. Secale cereale*, pšeno/grain	1	0,03	35	0,29	**36**	**0,23**
Triticum aestivum + *Triticum* cf. *aestivum*, pšeno/grain	402	10,31	2914	24,53	**3316**	**21,01**
Triticum aestivum subsp. *compactum*, pšeno/grain			60	0,51	**60**	**0,38**
Triticum aestivum /*T. spelta*, pšeno/grain			23	0,19	**23**	**0,15**
Triticum dicoccum + *Triticum* cf. *dicoccum*., pšeno/grain + pljeva/glume	289	7,42	767	6,46	**1056**	**6,69**
Triticum dicoccum /*T. spelta*, pšeno/grain	132	3,39	417	3,51	**549**	**3,48**
Triticum monococcum + *Triticum* cf. *monococcum*, pšeno/grain + pljeva/glume	69	1,77	12	0,10	**81**	**0,51**
Triticum spelta + *Triticum* cf. *spelta*, pšeno/grain + pljeva/glume	294	7,54	756	6,36	**1050**	**6,65**
Triticum sp., pšeno/grain	744	19,09	506	4,25	**1250**	**7,92**
MAHUNARKE / PULSES			1	0,01	**1**	**0,01**
Lens culinaris, sjemenka/seed			1		**1**	
KOROVI / WEED	17	0,44	174	1,41	**191**	**1,17**
Agrostemma githago, sjemenka/seed	16	94,12	4	2,31	**20**	**10,48**
Bromus secalinus, pšeno/grain	1	5,88	167	95,98	**168**	**87,96**
Chenopodium polyspermum, oraščić/nutlet			1		**1**	**0,52**
Chenopodium sp., oraščić/nutlet			1		**1**	**0,52**
Lapsana communis, roška/achene			1		**1**	**0,52**
PLODOVI IZ PRIRODE / FRUITS FROM NATURE			2	0,02	**2**	**0,01**
Corylus avellana, fragment oraha/nut shell fragment			2		**2**	
OSTALO / OTHER			312	2,52	**312**	**2,32**
cf. *Atriplex* sp., oraščić/nutlet			1	0,32	**1**	**0,32**
Bromus sp., pšeno/grain			4	1,28	**4**	**1,28**
Poaceae, pšeno/grain, fragm. pšena/grain fragment, pljeva/glume			100	32,05	**100**	**32,05**
Indet.			207	66,35	**207**	**66,35**
Ukupno / Total	**3915**	**100**	**12370**	**100**	**16285**	**100**

Tab. 4 Kaptol – Čemernica, usporedni prikaz biljnih nalaza iz tumula III i XI, grupiranih u ekološke skupine (izradila: R. Šoštarić)
Tab. 4 Kaptol – Čemernica, comparative overview of plant material from tumuli III and XI, classified into ecological groups (made by: R. Šoštarić)

pljenih u prirodi, najčešće lješnjak (*Corylus avellana*). Stoga možemo zaključiti kako je biljna komponenta grobnoga rituala pokapanja uglednih pokojnika u halštatu imala veliki značaj kojemu do sada nije pridavana dovoljna pažnja. Zbog toga je važno nastaviti s ovakvim istraživanjima kako bi se jasnije definirala važnost žitarica i plodova u cjelokupnome kompleksnom ritualu pokapanja halštatskih knezova i drugih visoko rangiranih osoba.

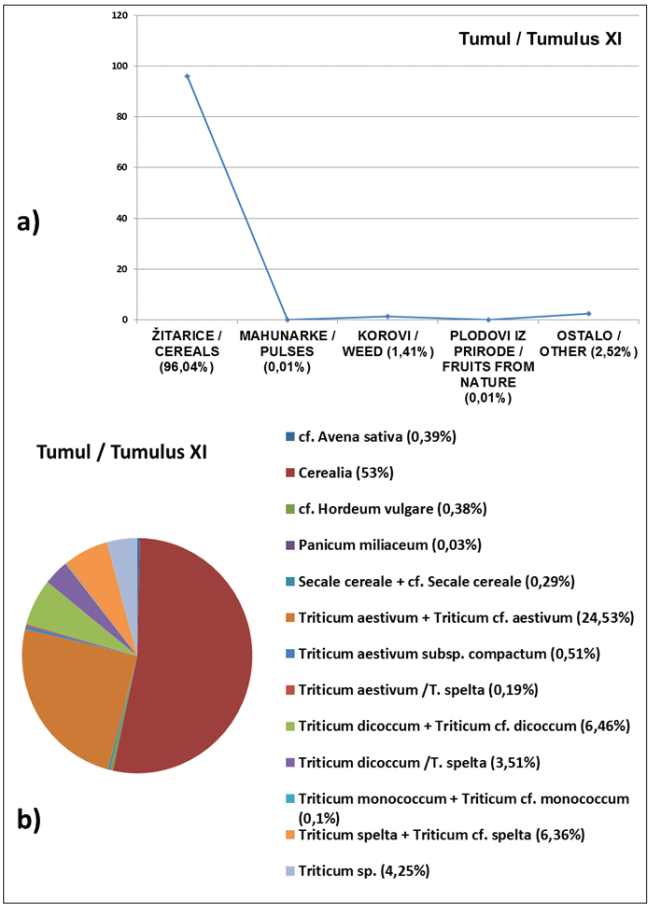
Činjenica da su mogli biti analizirani samo karbonizirani arheobotanički nalazi govori nam da zapravo gledamo u sliku zbivanja na pogrebnoj lomači, a ne sliku samih grobnih

According to the literature available, in the territory encompassed by the Hallstatt culture, systematic archaeobotanical research on necropolises has been very rare (cf. Hladíková, Kmetová 2019). In Croatia, it has been conducted only at the Kaptol – Gradci site (Šoštarić et al. 2016; 2017). When the results obtained for these two necropolises are compared – and also the results of research into some other sites within the eastern-Alpine region (and especially Kleinklein – Kröllkogel, Austria, where the quantity of botanical material was greater; Hladíková, Kmetová 2019) – we notice a high correspondence in the predominance of cereal



Sl. 5 Kaptol – Čemernica, prikaz arheobotaničkih nalaza iz tumula III: a) grupe biljnih nalaza; b) tipovi žitarica (izradila: R. Šoštarić)

Fig. 5 Kaptol – Čemernica, overview of archaeobotanical material from tumulus III: a) plant-material groups; b) cereal types (made by: R. Šoštarić)



Sl. 6 Kaptol – Čemernica, prikaz arheobotaničkih nalaza iz tumula XI: a) grupe biljnih nalaza; b) tipovi žitarica (izradila: R. Šoštarić)

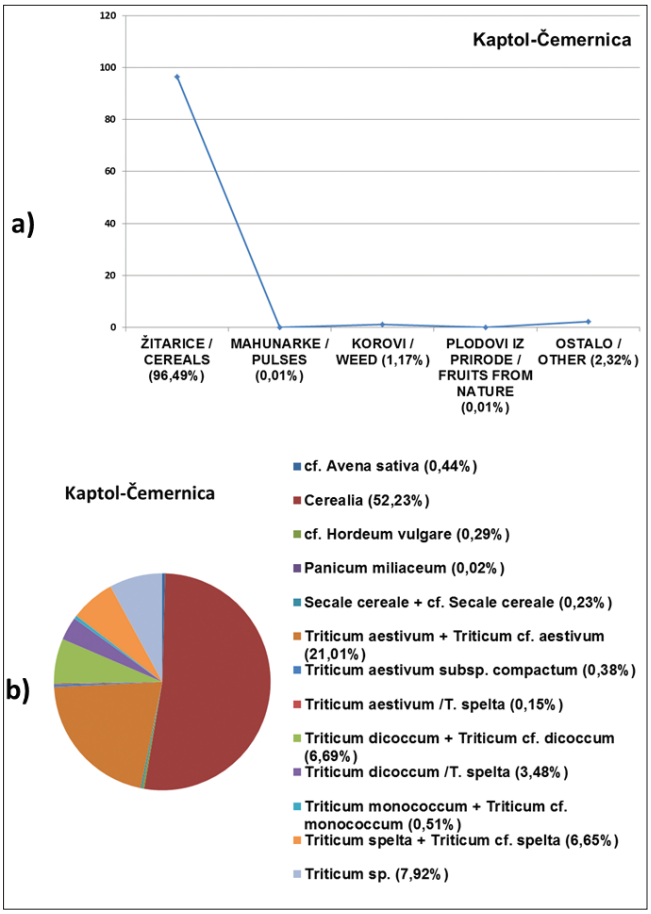
Fig. 6 Kaptol – Čemernica, overview of archaeobotanical material from tumulus XI: a) plant-material groups; b) cereal types (made by: R. Šoštarić)

priloga koji nam zbog okolišnih uvjeta nisu sačuvani. Izrazita dominacija žitarica u oba tumula konzistentna je već uočenom sličnom fenomenu na sjevernoj nekropoli istoga nalazišta na položaju Gradca (Šoštarić et al. 2016; 2017). Na ovaj način potvrđujemo tezu da je žito očigledno igralo važnu ulogu u prvoj fazi pogrebnoga rituala halštatskih uglednika, odnosno spaljivanju tijela. Isto nam tako govori da kremacija nije bio samo tehnički proces spaljivanja tijela kao pripreme za pokop, nego je predstavljala složen ritual s prilozima i žrtvama. S obzirom da smo do sada našli samo jedno spalište u tumulu XII na nekropoli Gradci, o kultnome značaju toga događaja kao i o bogatstvu priloga na lomači možemo saznati tek posredno putem fragmenata koji su vjerojatno slučajno dospjeli u tumul kao rezultat običaja pokrivanja poda središnje komore garom i pepelom s lomače. Za sada ključnu ulogu u toj rekonstrukciji igraju upravo arheobotanički nalazi.

Ne treba zanemariti niti vrijednost ovih nalaza u rekonstrukciji prehrane, dakako u kvalitativnome, a ne u kvantitativnome smislu, kao što ne treba zanemariti niti njihovu ulogu u determinaciji osnovnih okolišnih parametara. U ovome slučaju arheobotanička metodologija je, uz karbonizirane ostatke plodova i sjemenki, pridonijela još jednome aspektu rekonstrukcije okoliša kao i konstrukcije samih

grains, primarily wheat, and much smaller quantities of so-called fruit grave goods, which are sometimes present only in traces: remains of diverse carbonized wild fruits, mostly hazelnut (*Corylus avellana*). Thus we can conclude that the plant component of the burial ritual of the interment of distinguished persons was very important in the Hallstatt period, but it has not been researched with adequate attention. Therefore, it is important to continue with research of this kind, in order to define more clearly the importance of cereal grains and fruit in the entire complex ritual of interment of Hallstatt princes and other high-ranking persons.

The fact that only carbonized archaeobotanical material could be analysed suggests that we are looking at the picture of what occurred at the funeral pyre, rather than a picture of the grave goods, which have not been preserved, due to the environmental conditions. The strong predominance of cereal grains in both tumuli corresponds to a similar phenomenon evidenced in the northern necropolis within the same site of Gradci (Šoštarić et al. 2016; 2017). Thus, we have confirmed the thesis that grain clearly played an important role in the first phase of the burial of Hallstatt dignitaries, that is, in the cremation of their bodies. We can also see that the cremation was more than a technical process of incineration of the body as a preparation for the burial; it was a



Sl. 7 Kaptol – Čemernica, prikaz ukupnih arheobotaničkih nalaza: a) grupe biljnih nalaza; b) tipovi žitarica (izradila: R. Šoštarić)

Fig. 7 Kaptol – Čemernica, overview of all archaeobotanical material: a) plant-material groups; b) cereal types (made by: R. Šoštarić)

complex ritual that included grave goods and offerings. Given that, to date, we have only discovered one cremation spot in tumulus XII in the Gradci necropolis, we can learn about the relevance of the event from the perspective of the cult and about the richness of offerings at the pyre only indirectly, through fragments that ended up in the tumulus probably by chance, as a result of the custom of covering the floor of the central chamber with soot and ashes from the pyre. For the time being, the central role in the reconstruction of the rite is played by archaeobotanical material.

We should not disregard the importance of these finds for the reconstruction of the diet – obviously as a qualitative, rather than quantitative, indicator – or for the identification of the main environmental parameters. In this respect, in addition to the analysis of carbonized remains of fruits and seeds, the archaeobotanical methodology contributes to yet another aspect of reconstruction of the environment and structure of the tumuli as colossal grave monuments. More specifically, during the excavation of tumulus XI in 2007, a thin reddish-brown layer was observed surrounding the chamber, but it was simply impossible to collect it and record it precisely. At first it was thought that those were the carbonized remains of a wooden platform that surrounded the chamber. However, when a similar layer was discovered all over the floor surface of tumulus III, this time with individual plants observable in it, a different explanation was possible. It would appear that this was a layer of vegetation that had been brought here, or, more probably, of local vegetation that remained compressed under the enormous amount of earth when the tumulus was erected, and was thus carbonized. If this were the case, we can conclude that the tumuli were erected in one go, over a relatively short period of time, which created conditions favourable for

Sl. 8 Kaptol – Čemernica, tumul III, otisci, ostaci prapovijesne lokalne vegetacije na dnu tumula (snimila: R. Šoštarić)

Fig. 8 Kaptol – Čemernica, tumulus III, prints, remains of prehistoric local vegetation at the bottom of the tumulus (photo by: R. Šoštarić)

tumula kao monumentalnih pogrebnih spomenika. Naime, već je prilikom istraživanja tumula XI 2007. godine uokolo komore uočen jedan tanki crvenkasto-smeđi sloj koji je bilo jednostavno nemoguće sakupiti i precizno dokumentirati. U prvi mah smo pomislili da je riječ o karboniziranoj drvenoj platformi oko komore. Međutim kada smo na čitavoj površini tumula III ustanovili sličan sloj u kojem su se ovaj puta nazirale individualne biljke ponudilo se i drugo objašnjenje. Izgleda da je riječ o sloju donesene ili, vjerojatnije, lokalne vegetacije koja je podizanjem tumula ostala stisnuta golemom količinom zemlje i prošla kroz proces karbonizacije. Ukoliko je tomu tako, možemo ustvrditi da su tumuli podizani u jednome naletu i u relativno kratkome roku što je omogućilo nastanak uvjeta za karbonizaciju prirodne botaničke podloge. Vizualna determinacija subfosilnih otisaka biljaka djelomično je bila moguća na terenu, na tumulu III, dok je sloj s otiscima još bio cjelovit. Osim vlati i stabljika trava, uočene su i strukture koje bi mogle pripadati vrbolikoj u plodu (*Epilobium* sp.) i eventualno preslici (*Equisetum* sp.) te ukazivati na vlažnu podlogu ili čak vlažno područje u vrijeme podizanja tumula. Nažalost, pokušaj da se sačuvaju otisci biljaka s podlogom bio je tek djelomično uspješan i nije ih bilo moguće preciznije identificirati (sl. 8).

ZAKLJUČAK

Na položaju Kaptol – Čemernica flotirane su ukupno 674 litre sedimenta iz tumula III i XI te izdvojeno ukupno 16285 karboniziranih biljnih ostataka. U oba tumula apsolutno su najbrojniji nalazi žitarica (preko 90%). Zbog loše očuvanosti materijala, polovina nalaza žitarica determinirana je kao *Cerealia* (krupnozrne žitarice), među bolje očuvanim nalazima u oba tumula prevladava pšenica (*Triticum*), a od izdvojenih tipova pšenica najbrojnija je obična ili krušna pšenica (*Triticum aestivum*). Ostali nalazi (*Lens culinaris, Corylus avellana*, korovne pratilice žitarica i dr.) su pojedinačni ili malobrojni. Sve to pokazuje da je biljna komponenta grobnih rituala u starijem željeznom dobu imala puno veći značaj nego što se to do sada mislilo.

Važno je istaknuti i nalaz subfosilnih ostataka biljaka na čitavoj površini tumula III koji, najvjerojatnije, predstavljaju ostatke lokalne vegetacije. Podizanjem tumula te su biljke ostale zarobljene ispod goleme količine zemlje i prošle proces karbonizacije što bi moglo ukazivati na to da su tumuli podizani u jednome naletu i u relativno kratkome roku.

carbonization of the underlying vegetation. It was partially possible to identify the subfossil plant remains visually, on the spot at tumulus III, while the layer with prints was still intact. In addition to grass leaves and stems, other structures were also observed that could belong to willow herb with fruit (*Epilobium* sp.) and possibly horsetails (*Equisetum* sp.), and suggest that the substrate was humid, or even that the climate was humid at the time when the tumulus was erected. Unfortunately, the attempt to preserve the plant remains together with the substrate was successful only partially, and it was impossible to identify the remains more precisely (Fig. 8).

CONCLUSION

At the Kaptol – Čemernica site, a total of 674 litres of sediment from tumuli III and XI were floated, resulting in the isolation of 16.285 carbonized plant remains. In both tumuli, the most numerous remains are those of cereal grains (over 90%). Due to the poor preservation of the material, half of the recovered cereal grains have been identified as *Cerealia* (large-grained cereals); and, among the better-preserved material, wheat (*Triticum*) is predominant in both tumuli. The most frequent type of wheat identified is common wheat (*Triticum aestivum*). Other plant remains (*Lens culinaris, Corylus avellana*, weeds associated with cereals, etc.) are either single finds or present in small quantities. All of this suggests that the plant component of the burial ritual in the Early Iron Age was much more important than it was previously considered.

The discovery worth underscoring is that of subfossil plant remains all over the surface of tumulus III, which were most probably remains of local vegetation. When the tumulus was erected, the plants remained trapped under the enormous amount of earth, and they underwent a process of carbonization, which could indicate that the tumuli were erected in one go over a relatively short period of time.

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