# PLANT REMAINS FROM THE CLASSICAL PERIOD JAR-BURIALS IN THE MASTARA-3 ARCHAEOLOGICAL SITE (REPUBLIC OF ARMENIA)

Archaeologists presume that vessels found in pre-Christian period burials mostly contained food and drink intentionally put with the deceased for the afterlife. I agree with the above-mentioned theory as it is the most logical explanation and, as many studies showed, it is valid and applicable for the most of pre-Christian burials in the Old World. But, as there were not any studies regarding the content of the vessels from the Classical period burials in the territory of the Republic of Armenia, I tested that presumption having several vessels (dated with the  $2^{nd}-1^{st}$  centuries B. C.) from the archaeological site of Mastara–3. Revealing the particular food component of the burial vessels was one of the primary objectives of this study. Archaeobotanical methods were applied to conduct the planned investigation.

For the first time in Armenia, contents of Classical period jar-burials were examined for plant remains to reveal possible rituals of burial ceremonies involving plants and vegetal food. There where human skeletons present in all three jar-burials; in two of them there were adults and there was a child skeleton in the smallest jar. Few charred grains and other remains of cereals and seeds of some segetal weeds were recovered. Tetraploid or hexaploid wheat (Triticum aestivum/durum), possibly bread wheat, emmer (T. dicoccum) and barley (Hordeum vulgare) were identified among cultivated plants. Remains of the recovered cereals possibly represent remnants of a porridge-like food put in the pithoi with the bodies<sup>1</sup>.

Keywords: jar-burials, pithos, afterlife, food, ritual, cereals.

# Introduction

The investigated archaeological site of Mastara–3 is located 2–3 km to the west from the present-day Mastara town: N 40°27′10.90″, E 43°51′6.31″, 1815 m above sea level. The "Antic" settlement, particularly the investigated jar-burials are attributed to the Middle Classical period and preliminarily dated to the  $2^{nd}-1^{st}$  centuries B.C.<sup>2</sup>.

There are no other archaeological sites of the middle stage of the Classical period (Artashesid) in Armenia investigated for archaeobotany. Situation with archaeobotanical investigation is somewhat better for the Early Classical, so called Yervandid

<sup>&</sup>lt;sup>1</sup> I wish to thank the coordinator of the excavations, archaeologist Varduhi Melikyan, and physical anthropologist Levon Aghikyan for their support during the fieldwork and sampling

<sup>&</sup>lt;sup>2</sup> Melikyan 2018, 1–2.

period (600–200 B.C.<sup>3</sup>); several sites have been studied: Tsaghkahovit<sup>4</sup>, Shaghat–1, Shaghat–3, Uyts<sup>5</sup>, Odzaberd<sup>6</sup>, and Yervandashat<sup>7</sup>. Free-threshing wheat, hulled barley and, in much lesser proportions, also emmer were the main cultigens for all of the above-mentioned Early Classical period archaeological sites. Middle-Late Classical period archaeobotanical material is recovered in comparably large amounts in the site of 'Tigranakert of Artsakh', which is located in the province of Martakert in the Republic of Artsakh, approximately four kilometers south of the Khachenaget River<sup>8</sup>. There is also some archaeobotanical material examined for the end of 1<sup>st</sup> – beginning of 2<sup>nd</sup> centuries A.D. Artashat<sup>9</sup>. As for the Early Classical period sites, free-threshing wheat and hulled barley were the primary crops also in the Middle and Late Classical period Tigranakert and in Artashat.

For the first time for the territory of Republic of Armenia, the content of jar-burials were examined to recover plant remains. The goal of this study was to reveal any possible use of plants and vegetal material during burial ceremonies in the Classical period. There were attempts to recover plant remains from funeral contexts of burials also for other cultural and chronological periods. For example, vessels contents and-or burial soil fills from an Early Bronze Age tomb of Shengavit<sup>10</sup>, several Middle Bronze Age tombs of Nerkin Naver<sup>11</sup>, Aghavnatun and Sotk –10 cemeteries<sup>12</sup>, Late Bronze Age tombs of Tsaghkahovit, Gegharot and Tsaghkasar –1 sites, an Early Iron Age tomb from Uyts site<sup>13</sup> were examined but, for the majority of burials and also individual vessels, there were no plant macroremains present (preserved) and only few of them revealed little quantity of seed material. All seeds of cultivated plants re-

- <sup>5</sup> Zardaryan, Hovsepyan 2017, 385–398.
- <sup>6</sup> Badalyan et al. 2017, 215–217.

<sup>7</sup> The content of a vessel (alabastron) found on the floor N5 of I10 square in the Yervandashat settlement (excavations of 2012) was examined. The vessel dated to the 3<sup>rd</sup> century B.C. (Syuzanna Muradyan, personal communication). Several charred grains of cereals were found in 0.5 liter sample: free-threshing wheat (*Triticum aestivum/durum*; 3 grains), species unidentified wheat (*Triticum sp.*; 1 grain fragment), cultivated barley (*Hordeum vulgare*; 1 grain fragment), and an unidentified cultivated cereal (*Triticeae gen. sp.*; 1 grain fragment).

According to ethnographic parallels, e.g. village Vahan in Gegharkunik, vessels of similar shape (a bit elongated and with not wide opening/mouth) and volume (1–3 litres) have been used (mostly until 1990s) to prepare yeast to use in the cheese preparation (locally called 'maya'). A piece of calf or pig stomach, a palm of cereals grains, several fruits of cornel (*Cornus mas*), an egg and a spoon of salt were put in a vessel with water, covered and left approximately 10 days for fermentation. Yeast preparation was the same also in village Tatev in Syunik: pieces of cow stomach with barley grains have been used. Discussions with Dr. Mkrtich Zardaryan and Syuzanna Muradyan lead us to the idea that the examined vessel from the Yervandashat site also might have been used as a container for the yeast fermentation for cheese preparation.

- <sup>9</sup> Palanjyan, Murashev 2007, 131–133.
- <sup>10</sup> Hovsepyan 2007c, 25–29.
- <sup>11</sup> Hovsepyan 2007a, 215–217; 2007b, 233–234.
- <sup>12</sup> Hovsepyan 2017b, 273–274.
- <sup>13</sup> Zardaryan, Hovsepyan 2017, 394.

<sup>&</sup>lt;sup>3</sup> Avetisyan, Bobokhyan 2012, 18.

<sup>&</sup>lt;sup>4</sup> Khatchadourian 2014, 152–153, 163–164.

<sup>&</sup>lt;sup>8</sup> Petrosyan et al. 2014, 91–93.

covered from the above-mentioned funeral contexts represent cereals, free-threshing wheats, barley and emmer in particular.

# Material and Methods

The soil fills of four vessels were sampled during the excavations of 2017. Three of those four vessels represented jar-burials (Burials N°2 and N°3 in square H2, and burial N°4 in square H3). Burials N°2 and N°3, both are just buried vessels (jars), there were no visible structures associated to those jars, so, for these cases, burial = vessel (jar) (i.e. Burial N°2 = Vessel N°2.1, Burial N°3 = Vessel N°3.1). Situation is not the same with the Burial N°4 in square H3; it is a tomb with stone-walled chamber that includes several human skeletons in a back side and a large jar-burial (the largest one among three studied) in the front side. Conditionally this jar-burial is named Vessel N°4.1 (Vessel N°4.1  $\neq$  Burial N°4); on its turn this jar contained human skeletons, a small jug (Vessel N°4.2) and a small bowl (Vessel N°4.3)<sup>14</sup>.

In sum, 95.5 liters of sediments were sampled and processed (Table 1). Human bones were present in all three excavated pithoi (jars); there were adults' bones in two comparably larger pithoi – Vessel Nº2.1 (sq. H2), and Vessel Nº4.1 (sq. H3), and a child bones in the smallest pithos – Vessel Nº3.1 (sq. H2) (Table 1).

Accustomed classical technique of archaeobotanical studies was applied for the current study<sup>15</sup>. Flotation and wet-sieving methods were co-applied to separate plant macroremains from the archaeological sediments (flotation machine was used). Mesh size of the used sieve for flotation was 0.3 mm, and for the wet-sieving it was 1 mm. There were no large (larger than few milimeters) fragments of charcoal in the separated floating concentrate.

219 seeds and fruits of Flowering Plants are recovered during our archaeobotanical investigations. Those seeds are either charred or mineralized, hence considered ancient. There are also 126 uncharred, possibly modern seeds, which are not counted for calculations (e.g. concentration). Concentration of the carpological material is from 0.2 to 4.0 seeds/liter in the studied samples (Table 1). The highest, 4.0 seeds/ liter concentration is recorded for the small jug (Vessel Nº4.2) from the largest pithos (Vessel Nº4.1). Circa 3.5 seeds/liter concentration is recorded for this, the largest of the studied vessels (Vessel Nº4.1), which contained the most of seeds remains. In general, concentration of carpological material is low in the sampled archaeological sediments (Table 1).

Stereoscopic microscope was used to study the recovered specimens (magnification: x10-100). Corresponding literature and a reference collection were used to identify the recovered carpological material<sup>16</sup>. A computer scanner was used to prepare images for some of the specimens (scanning resolution: 4800 ppi; Fig. 1, p. 232).

<sup>&</sup>lt;sup>14</sup> Cf. Melikyan 2018, 10–20.

<sup>&</sup>lt;sup>15</sup> Cf. Hovsepyan 2017a, 212–216.

<sup>&</sup>lt;sup>16</sup> E.g. Zohary et al. 2012; Takhtajan 1957–2011.

## **Results and Discussions**

Majority of the recovered carpological material are seeds of wild and weedy plants. On their turn, a part of these wild and weedy plants' seeds are modern (marked as uncharred in Table 1); these seeds appeared in the vessels presumably in a result of insects activity or spontaneously, when the surrounding soil moved into the vessels because of gravity or because of the rain waters flow. Although the recovered archaeocarpological material has bad preservation and the concentration of seed material is low, 14 taxa of the Flowering Plants are identified (excluding the recent seeds, which are 6 taxa; Table 1).

Here is the description and interpretation of all studied samples.

Jar-burial №2 (Vessel №2.1; 32 liters sediment from the vessel content) – 81 units of carpological material are found from this jar-burial of an adult (2.5 seeds/ litre). Most of the carpological findings are charred grains of cultivated cereals and their fragments: tetraploid or hexaploid wheat (*Triticum aestivum/turgidum*), species unidentifiable wheat (*Triticum* spp.), genus and species unidentifiable cultivated cereals (Triticeae gen. spp. & cf. Triticeae gen. spp.) were identified among grains findings. In addition, biomineralized erems of field gromwell (*Buglossoides arvensis*) were recovered from this pithos (Table 1).

**Jar-burial** №**3** (Vessel №3.1; 25 liters) – Only 5 charred seeds are recovered from this pithos, which was a child burial with some preserved skeletal remains. There is one charred fragment of a plant, possibly cereal grain (cf. Triticeae gen. spp.), mericarps of false cleavers (*Galium cf. spurium*), a seed of, probably, mitnan (cf. *Thymelaea sp.*) and an unidentified seed of a herbaceous plant (Table 1).

Jar-burial №4.1 (38 liters) – This pithos was the largest among the examined ones. It was inserted in a stone-walled small tomb in the horizontal position after the skeletons from the earlier inhumations were pushed to the backside of the tomb. There were remains of an adult's skeleton, a small jug and a bowl as well as several beads in this pithos. The majority of the plant macroremains were found from this pithos, 257 units of carpological material. Unfortunately, there was a later intrusion and the 126 of the recovered seeds are uncharred, thus considered as modern (Euphorbia sp., Chenopodium sp., Lamiaceae gen. sp.1, Lamiaceae gen. sp.2, Fabaceae gen. sp. 2, cf. Caryophyllaceae gen. sp.; Table 1). Nevertheless, the rest of the carpological material, represented by charred and biomineralized seeds and fruit remains, still showed an essential diversity. 102 of 131 ancient seeds remains, i.e. 78%, are remains of cultivated cereals (Triticeae). The recovered grains made possible the identification of at least three cultivated cereals: tetraploid and/or hexaploid wheat (Triticum aestivum/turgidum), emmer (Triticum cf. dicoccum) and barley (Hordeum vulgare). A part of the tetraploid and/or hexaploid wheat (Triticum aestivum/turgidum) belongs to free-threshing wheat (Triticum aestivum/durum). There are more wheat grains recovered than barley. Most of the recovered cereals' grains are badly eroded thus allowing the identification only on a tribe level (Triticeae gen. spp.). The findings of cereals are not limited to grains; there are also remains of a straw node (Triticeae gen. spp.), a glume of wheat (*Triticum* spp.), an internode of common bread wheat (*Triticum aestivum* ssp. *vulgare* (*aestivum*)) and two spikelet bases, without the lower part of the internode, identified as emmer (*Triticum* cf. *dicoccum*). There is also one poorly preserved grain that resembles that of millet (cf. *Panicum* sp.). All findings of the cultivated cereals are charred (Table 1; Fig. 1, p. 232).

Non-cultivated species recovered from the content of this pithos, represent charred grains of grasses (species of Poaceae family), mericarps of Rubiaceae family species, false cleavers (*Galium* cf. *spurium*) and probably woodruff (cf. *Asperula* sp.), a nutlet of an unidentified species of Polygonaceae family, a capsule of Syrian mustard (*Euclidium syriacum*), a seed of adonis (*Adonis sp.*), biomineralized erems of species of Boraginaceae family, field gromwell (*Buglossoides arvensis*), small bugloss (*Anchusa arvensis*) and alkanet (*Alkanna orientalis*), as well as several charred seeds of an unidentified herbaceous plant (Table 1; Fig.1, p. 232).

Small jug (Vessel №4.2) from Jar-burial №4.1 (0.5 liters) – The soil content of the small vessel, a jug from the largest pithos was sampled to check the presence of plant macroremains. Only two charred remains of cultivated cereals were found from this jug; one of those is a grain of tetraploid and/or hexaploid wheat (*Triticum aestivum/turgidum*) (Table 1).

There was a large amount of mouse droppings (coprolite) in all examined vessels. The presence of mouse coprolite may serve an indirect evidence for a large quantity of cereals grains<sup>17</sup>.

Summing up with the recovered plants taxa list, we may state that at least three taxa of cultivated cereals and eleven of wild plants, which probably are segetal weeds, were recorded for the Mastara–3 site (Table 1). All of the recorded plant taxa are already known from other archaeological sites of the country and region<sup>18</sup> and grow in the vicinity of the site. In general, all three recorded cultivated cereals, free-threshing wheat, which probably is common bread wheat, barley, in all probability hulled barley, and emmer are the most common cultigens for the prehistory of the South Caucasus. In the region, these cereals have been grown since the Neolithic period to present days without a visible interruption, i.e. they are recorded for all archaeological periods<sup>19</sup>.

Preliminary archaeobotanical studies at the Tigranakert of Artsakh revealed practically the same assemblage of cultivated plants in the sediments of the Classical period settlement: hulled barley (*Hordeum vulgare*), tetraploid and-or hexaploid wheat (*Triticum aestivum/turgidum*), including common bread wheat (*Triticum cf. aestivum ssp. aestivum (vulgare*)) and club wheat (*Triticum cf. aestivum ssp. compactum*), emmer (*Triticum cf. dicoccum*) and broomcorn millet (*Panicum miliaceum*). In addition to these cultivated cereals, grape (*Vitis vinifera*), fig (*Ficus carica*) and greek walnut

<sup>&</sup>lt;sup>17</sup> Cf. Willcox et al. 2008, 313–325.

<sup>&</sup>lt;sup>18</sup> E.g. Lisitsina, Prishchepenko 1977, 61–76; Gandilyan 1998; Hovsepyan 2011, 2015, 2017b.

<sup>&</sup>lt;sup>19</sup> Lisitsina, Prishchepenko 1977, 61–76; Gandilyan 1998; Hovsepyan, Willcox 2008; Hovsepyan 2015.

(*Juglans regia*) were cultivated or gathered (referring to fig and walnut) from the wild along with hackberry (*Celtis sp.*)<sup>20</sup>. The assemblage of wild and weedy plants also mostly repeats in the Classical period Mastara–3 and Tigranakert; some taxa such as *Alkanna orientalis, Euclidium syriacum* and *Thymelaea sp.* were not recorded for the Classical period Tigranakert, which may be conditioned by the altitudes of the sites and environmental conditions in general. Only one small jar-burial, found<sup>21</sup> under the entrance of a room in the Classical period quarter of the Tigranakert site, was examined for plants remains; the vessel content contained bone remains of fetus<sup>22</sup>, but no plants remains.

Cultivated plants recovered in various funeral contexts (Europe, first millennium B.C. – first millennium A.D. period sites) in general are the most common ones cultivated and consumed by that community and mainly represented with cereals. Other most common plants in funeral context are cultivated pulses and fruits<sup>23</sup>. There is an opinion that the cereal grains presence in the graves had symbolic meaning related to dying, burial and re-birth<sup>24</sup>.

## Conclusions

As a part of the burial rite, food was buried with the bodies of deceased in the Classical period. The afterlife food included cereals grains and possibly was some kind of porridge. Although we have a clear evidence of this practice in the Mastara–3 site, more investigations are necessary to reveal whether this practice was an obligatory part of the burial rites in the Classical period or it was casual.

### REFERENCES

#### AVETISYAN, BOBOKHYAN 2012

Avetisyan P.S., Bobokhyan A.A., Archaeology of Armenia in regional context: achievements and perspectives // *Archaeology of Armenia in regional context*, Yerevan, "Gitutyun", 2012, 7–20.

#### BADALYAN et al. 2017

Badalyan M., Mik'ayelyan A., Kyoureğyan H., Iskra M., Hovsep'yan R., Nahapetyan S., Yeğiazaryan A., O3aberdi 2014–2016 t't'. peğoumneri naxnakan ardyounk'nerə [Oăuphph 2014–2016 pp. uhnnu'luhph luulu'luulu'u upnjnu'luhtph] (Preliminary Results of the 2014–2016 Archaeological Excavations in Odzaberd // Metsamor readings, 2017, 1, Yerevan, "Service for protection of historical environment and historical-cultural museum reserves", 205–246 (in Armenian).

#### GANDILYAN 1998

Gandilyan P.A., Archaeobotanical evidence for evolution of cultivated wheat and barley in Armenia // Origins of Agriculture and Crop Domestication, Aleppo, "ICARDA", 1998, 280–285.

<sup>&</sup>lt;sup>20</sup> Petrosyan et al. 2014, 91–93.

<sup>&</sup>lt;sup>21</sup> According to personal communication of Dr. Inesa Karapetyan (IAE, Armenia).

<sup>&</sup>lt;sup>22</sup> According to personal communication of Dr. Valentin Radu (MNIR, Romania).

<sup>&</sup>lt;sup>23</sup> E.g. Matterne, Derreumaux 2008, 107–112; Šoštarić et al. 2018, 4–12; Reed et al. 2018, 3–8.

<sup>&</sup>lt;sup>24</sup> Hansson, Bergström 2002, 54–55.

#### HANSSON, BERGSTRÖM 2002

Hansson A.-M., Bergström L., Archaeobotany in prehistoric graves – concepts and methods // Journal of Nordic Archaeological Science, 2002, 13, 43–58.

#### HOVSEPYAN 2007a

Ovsepjan R. A., Paleo-ètnobotaničeskij material iz sosudov kurgana № 3 mogil'nika Nerk'in Naver [Палео-этноботанический материал из сосудов кургана № 3 могильника Неркин Навер] (Palaeoethnobotanical material from pots of tomb № 3 of Nerk'in Naver tombfield) // Archaeology, Ethnography and Folklore of the Caucasus, Makhachkala, "Èpoxa", 2007, 215–217 (in Russian).

#### HOVSEPYAN 2007b

Hovsepyan R. A., Pots contents at Nerkin-Naver tomb № 4 (Republic of Armenia) // Archaeology, ethnology and folklore of the Caucasus, Tbilisi, "Universal", 2007, 233–234.

#### HOVSEPYAN 2007c

Hovsep'yan R. A., Bousakan mnac'ordner Šengavit'i № 3 dambarani kavanot'neric' [Anuuluuu uuugnnuun Chuquulhəh № 3 nuufpunuuh luuduunəutphg] (New archaeological finds from Shengavit site: plant remains from vessels of tomb № 3) // *Problems of Armenian Ethnography and Archaeology* (ed.-s P.S. Avetisyan, L.H. Hmayakyan, T.S. Dalalyan, A.A. Bobokhyan), 2007, 3, Yerevan, "Gitutyun", 25–29 (in Armenian).

#### HOVSEPYAN 2011

Hovsepyan R. A., Palaeoethnobotanical data from the high mountainous Early Bronze Age settlement of Tsaghkasar-1 (Mt. Aragats, Armenia) // *Ethnobiology Letters*, 2011, 2, 58–62.

#### HOVSEPYAN 2013

Hovsepyan R. A., First archaeobotanical data from the basin of Lake Sevan // Veröffentlichungen des landesamtes für denkmalpflege und archäologie Sachsen-Anhalt, 2013, 67 (Archäologie in Armenien II), 93–105.

#### **KHATCHADOURIAN 2014**

Khatchadourian L., Empire in the Everyday: A Preliminary Report on the 2008–2011 Excavations at Tsaghkahovit, Armenia // American Journal of Archaeology, 2014, 118 (1), 137–169 (Appendix 1 by Hovsepyan R.A. Archaeobotanical Investigations at Iron Age III Tsaghkahovit, 152–153, 163–164 [Table & Fig.]).

#### HOVSEPYAN 2015

Hovsepyan R.A., On the agriculture and vegetal food economy of Kura-Araxes culture in the South Caucasus // *Paléorient*, 2015, 41 (1), 69–82.

#### HOVSEPYAN 2017a

Hovsepyan R.A., Archaeobotanical sampling: Instructions for fieldwork // Proceedings of the Institute of Archaeology and Ethnography [ $\zeta'$ umahınınıpım'u lı maqmanıpım'u humphınınıpı m2humpınıpın'u'utan (Hnagitout'yan ev azgagrout'yan instituti ašx-atoutyounner)], 2017, N<sup>o</sup> 2, Yerevan, "Gitutyun", 212–216.

#### HOVSEPYAN 2017b

Hovsepyan R.A., New data on archaeobotany of the Lake Sevan basin // Iran and the Caucasus, 2017, 21 (3), 251–276.

#### HOVSEPYAN, WILLCOX 2008

Hovsepyan R. A., Willcox G., The earliest finds of cultivated plants in Armenia: evidence from charred remains and crop processing residues in pisé from the Neolithic settlements of Aratashen and Aknashen // *Vegetation History and Archaeobotany*, 2008, 17 (1), 63–71.

#### LISITSINA, PRISHCHEPENKO 1977

Lisicina G.L., Priščepenko L.V., Paleo-ètnobotaničeskie naxodki Kavkaza i Bližnego Vostoka [Палео-этноботанические находки Кавказа и Ближнего Востока] (Palaeoethnobotanical finds of Caucasus and Near East), Moscow, "Nauka", 1977 (in Russian).

#### MATTERNE, DERREUMAUX 2008

Matterne V., Derreumaux M., A Franco-Italian investigation of funerary rituals in the Roman world, "les rites et la mort à Pompéi", the plant part: a preliminary report // *Vegetation History and Archaeobotany*, 2008, 17, 105–112.

#### MELIKYAN 2018

Melikyan V., Mastarayi vağ bronz, antik žamanakašržanneri norahayt bnakavayrn ousoumnasiroğ hnagitakan aršavaxmbi 2017 t. daštayin ašxatank'nerə [Uuuunupujh dun ppnuq, uuunhu duuuuuuupuynuuupuu inpuuhuju nuuuuuupujh unuuuuupun huuqhunuuuu unpuuduuuph 2017p. nuupuujhu uupuuuuuupuhpi] (2017 fieldwork report of the archaeological expedition investigating newly discovered Early Bronze Age and Classical period settlement of Mastara // Report for the Institute of Archaeology and Ethnography NAS, Armenia, Yerevan, 2018 (unpublished; in Armenian).

#### PALANJYAN, MURASHEV 2007

Palanjyan R.S., Murashev R.S., Paleobotaničeskie naxodki Antičnogo vremeni pri raskopkax stolicy drevnej Armenii Artašata [Палеоботанические находки Античного времени при раскопках столицы древней Армении Арташата] (Classical period paleobotanical findings from excavations of Artashat, ancient capital of Armenia) // Almanac of modern science and education, 2007, 7 (2), Tambov, "Gramota", 131–133 (in Russian).

#### PETROSYAN et al. 2015

Petrosyan H. L., Kirakosyan L., Safaryan V., Karapetyan I., Vardanesova T., Hovsepyan R. A., Arc'axi Tigranakerti 2012 t'. hnagitakan hetazotout'yan himnakan ardyounk'nerə [Upguluh Shqnuuuluun] 2012 p. huuqhunuluu huuqnunupjuu hhuuuluu unnjnuupuup] (Main results of archaeological excavations of Tigranakert in Artsakh, 2012) // Archaeological studies in Artsakh 2011–2012, Stepanakert, "Dizak plus", 2015, 73–108 (in Armenian).

#### REED et al. 2018

Reed K., Lodwick L., Leleković T., Vulić H., Exploring Roman Ritual Behaviours Through Plant Remains from Pannonia Inferior//*Environmental Archaeology: The Journal of Human Palaeoecology*, 2018, 24(1), 28–37.

#### ŠOŠTARIĆ et al. 2017

Šoštarić R., Potrebica H., Hršak J., Essert S., Archaeobotanical components of grave goods in prehistoric tumuli 6 and 7 at the archaeological site of Kaptol-Gradci, near Pože-ga (Croatia) // Acta Botanica Croatica, 2017, 76(2), 183–190.

#### **TAKHTAJYAN 1954-2011**

Taxtadžjan A.L. (ed.), Flora Armenii [Флора Армении] (Flora of Armenia), vol. 1–11, 1954–2011 (in Russian).

#### WILLCOX 2008

Willcox G., Fornite S., Herveux L., Early Holocene cultivation before domestication in northern Syria // Vegetation History and Archaeobotany, 2008, 17(3), 313–325.

#### ZARDARYAN, HOVSEPYAN 2017

Zardaryan M., Hovsepyan R. A., The agriculture of Western Syunik, Armenia in the light of archaeological and archaeobotanical data (preliminary study on the economy of Early Yervandid settlements) // Bridging Times and Spaces: Papers in Ancient Near Eastern, Mediterranean and Armenian Studies, Oxford, "Archaeopress", 2017, 385–398.

#### ZOHARY et al. 2012

Zohary D., Hopf M., Weiss E., Domestication of Plants in the Old World, New York, "Oxford University Press", 2012.

					1				
Square			H2	H2	H3	H3			
Burial			2	3	4	4			
Vessel			2.1	3.1	4.1	4.2			
			jar-burial	jar-burial	jar-burial	jug from jar-burial 4.1			
Sediment volume (liter)			32	25	38	0.5			
Concentration of carpological material (units/liter)			2.53	0.20	*3.45	4.00			
Plant taxa	Finding / Organ	Preservation	81	5	*131	2			
CULTIVATED CEREALS									
cf. Triticeae gen. spp.	possibly grains fragments	charred	58	1	36	1			
Triticeae gen. spp.	grains fragments	charred	5		45				
Triticeae gen. spp.	straw nodes	charred			1				
cf. Triticum spp.	grains	charred	3		4				
Triticum spp.	grains	charred	1						
Triticum spp.	spike glumes	charred			1				
Triticum aestivum/turgidum	grains	charred	1		6	1			
<i>Triticum aestivum/durum</i> (naked)	grains	charred			1				
Triticum aestivum ssp. vulgare (aes- tivum)	rachis internodes	charred			1				
Triticum cf. dicoccum	grains	charred			1				
Triticum cf. dicoccum	spikelet bases	charred			2				
cf. Hordeum vulgare	grains	charred	4		1				
Hordeum vulgare	grains	charred			2				
cf. Panicum sp.	grains	charred			1				
WI	EEDS & WILD	PLANTS							
Poaceae									
cf. Poaceae gen. sp.	grains fragments	charred			2				
Poaceae gen. spp. div. (longer grains)	grains	charred			7				
Rubiaceae									
Galium cf. spurium	mericarps	charred		2	2				

		Table 1.
Carpological material recovered from	the Mastara–3	archaeological site (2017).

cf. Asperula sp.	mericarps	charred			1				
Polygonaceae									
Polygonaceae gen. spp.	nutlets	charred			1				
Brassicaceae									
Euclidium syriacum	capsules	charred			1				
Ranunculaceae									
Adonis sp.	seeds	charred			1				
Thymeleaceae									
cf. Thymelaea sp.	seeds	charred		1					
Boraginaceae									
Buglossoides arvensis	erems	biomineral- ized	4		9				
Anchusa arvensis	erems	biomineral- ized			1				
Alkanna orientalis	erems	biomineral- ized			1				
Euphorbiaceae									
Euphorbia sp.	nutlets	uncharred			17				
Lamiaceae									
Lamiaceae gen. sp.1	nutlets	uncharred			66				
Lamiaceae gen. sp.2	nutlets	uncharred			24				
Fabaceae									
Fabaceae gen. sp. 2	seeds	uncharred			17				
Caryophyllaceae									
cf. Caryophyllaceae gen. sp.	pods	uncharred			1				
Chenopodiaceae									
Chenopodium sp.	seeds	uncharred			1				
Unidentified group									
Various herbaceous species	seeds	charred	5	1	3				

Note: \* - The uncharred seeds considered modern and were not counted in the calculations.

## ԱՄՓՈՓԱԳՐԵՐ

**Ռ. Ա. Հովսեփյան**, կ.գ.թ. Հնագիտության և ազգագրության ինստիտուտ

# Բուսական մնացորդներ Մաստարա–3 հնավայրի անտիկ դարաշրջանի կարասային թաղումներից

*Հիմնաբառեր*՝ կարասային թաղումներ, պիթոս, հետմահու կյանք, սնունդ, ծես, հացաբույսեր։

ՀՀ տարածքի համար առաջին անգամ կատարվել է անտիկ դարաշրջանի կարասային թաղումների հնաբուսաբանական հետազոտություն՝ նպատակ ունենալով բացահայտելու թաղման ծեսի ընթացքում բույսերի և բուսական սննդի օգտագործում։ Հետազոտված երեք թաղումների դեպքում էլ առկա էին մարդկային կմախքներ. երկու համեմատաբար խոշոր կարասներում՝ չափահասների, իսկ ամենափոքրում՝ մանկան։ Հետազոտված անոթներում հայտնաբերվեցին փոքր քանակությամբ ածխացած հացահատիկներ և դրանց բեկորներ, ինչպես նաև որոշ սեգետալ մոլախոտերի սերմեր։ Մշակաբույսերից նույնականացվել են տետրապլոիդ կամ հեքսապլոիդ ցորեն (*Triticum aestivum/durum*), որը հավանաբար փափուկ ցորենն է, հաճար (*T. dicoccum*) և գարի (*Hordeum Vulgare*)։ Հացաբույսերի հայտնաբերված մնացորդները հավանաբար հանգուցյալների հետ կարասների մեջ դրված սննդի մնացորդներն են։

# **R. A. Hovsepyan**, PhD

Institute of Archaeology and Ethnography

# Plant Remains from the Classical Period Jar-Burials in the Mastara-3 Archaeological Site (Republic of Armenia)

Keywords: jar-burials, pithos, afterlife, food, ritual, cereals.

For the first time in Armenia, contents of Classical period jar-burials were examined for plant remains to reveal possible rituals of burial ceremonies involving plants and vegetal food. There where human skeletons present in all three jar-burials; in two of them there were adults and there was a child skeleton in the smallest jar. Few charred grains and other remains of cereals and seeds of some segetal weeds were recovered. Tetraploid or hexaploid wheat (Triticum aestivum/durum), possibly bread wheat, emmer (T. dicoccum) and barley (Hordeum vulgare) were identified among cultivated plants. Remains of the recovered cereals possibly represent remnants of a porridge-like food put in the pithoi with the bodies.

## Р.А.Овсепян, к.б.н.

Институт археологии и этнографии

# Растительные остатки из карасных захоронений античного периода археологического памятника Мастара—3 (Республика Армения)

*Ключевые слова*: карасные захоронения, питос, загробная жизнь, еда, ритуал, зерновые.

На территории Армении впервые были проведены археоботанические исследования захоронений античного периода с целью выявления погребальных ритуалов с использованием

растений и растительной пищи. Человеческие скелеты присутствовали во всех трех исследованных нами погребениях, в двух из которых были выявлены скелеты взрослых, а в самом маленьком карасе был найден скелет ребенка. Из сосудов в небольшом количестве были извлечены обугленные зерна и остатки других злаков и семян некоторых сегетальных сорняков. Среди культурных растений были идентифицированы тетраплоидная или гексаплоидная пшеница (*Triticum aestivum/durum*), возможно – хлебная пшеница, двузернянка (*T. dicoccum*) и ячмень (*Hordeum vulgare*). Обнаруженные остатки зерновых, возможно, представляют собой остатки пищи, помещенной в сосуды вместе с телами усопших.