

# **The Iron IV Period in Eastern Iran: an Overview of the Research**

**Vittoria Cardini**

**University of Rome – Sapienza**

**cardini.vittoria@gmail.com**

## **Abstract**

The article shows the state of art about studies on Iron IV/Achaemenid period (550-330 BC) in the eastern part of Islamic Republic of Iran. Researches comprehends surveys and excavations from past to present, with a preliminary aspects of pottery production contexts divided in two macro-areas, North and South regions, with mentions of major part of every sites investigated. The Iron IV/Achaemenid period in this area is mostly unknown and limited and just few sites are investigated and published. One of difficult to distinguish the assemblages of material culture is the continuity of local traditions in the Iron Age period and the independence of production from political changes. Anyway, we can understanding different pottery characteristics from north to south regions, but partially this depend to the type of context in which the sites are inserted.

## **1. Introduction**

In the past, Iranian archaeology concentrated on the heartland of the Achaemenid Empire, specifically its palatial dimension. Our knowledge of villages and other

parts of the empire is therefore limited, in some cases almost non-existent. In the 20<sup>th</sup> century, excavations focused on the residential areas of Persepolis (Sumner 1986) and Susa (Ghirshman 1952), in the regions of Fars and Khuzestan. Recently, research in these locations has resumed, sometimes leading to exceptional discoveries, as in Tol-e Ajori (Askari Chaverdi *et al.* 2016) and Pasargadae (Gondet *et al.* 2016) in Fars. However, once again attention has mainly been paid to the most important sites at the core of the Achaemenid Empire (Briant - Boucharlat 2005). At present, archaeological evidence of the Iron IV/Achaemenid period in eastern Iran is limited.

Concerning terms and chronology, following Boucharlat's comments (Boucharlat 2005) on the use of the phrase 'Achaemenid period' for materials and contexts, we prefer the more strictly archaeological term 'Iron IV' to 'Achaemenid', which encompasses cultural and socio-political concepts.

With regard to material culture, our knowledge of the eastern regions in this period is still incomplete. The independence of pottery production from political developments is reflected in the Iron IV period, especially given the continuity with the local traditions of Iron III, seen above all in morphologies rather than types of vessel (Boucharlat - Haerinck 1992). Despite imperial unification, pottery production – and material culture generally – is not homogeneous throughout Iran but remains divided into nine main 'pottery regions' (Boucharlat - Haerinck 1992).

The focus of this paper is the archaeological evidence of the Iron IV period from eastern Iran, divided into two macro-areas, north and south. The north-eastern area includes the modern provinces of Golestan, Gorgan and Khorasan, and the south-eastern area the modern province of Sistan-Baluchistan (Fig. 1).

## **2. Research in the north-eastern area**

The north-eastern part of Iran is a little-known area, especially with regard to the Iron IV period. The first investigations of the territory were carried out in the 1980s-90s (Venco Ricciardi 1980; Kohl - Heskell 1980; Gropp 1995) and it was immediately clear that several local cultural groups had inhabited the area in



Fig. 1: Achaemenid sites in the Eastern part of Iran.

the Bronze Age and Iron Age, leaving abundant evidence. A subsequent survey (Vahdati 2008) again highlighted the shortage of knowledge of this territory from an archaeological point of view, especially regarding the Iron IV period. Specifically, the late Iron Age remains one of the least known periods in the archaeology of north-eastern Iran. The only excavated Iron IV settlements in this region are the sites of Turang Tepe (Deshayes 1976; 1979; Cleuziou 1985; Bessenay-Prolonge - Vallet 2018), Yarim Tepe (Crawford 1963, Kohl - Heskell 1980), Āq Tepe (Shahmirzadi - Nokandeh 2001) and Narges Tepe (Abbasi 2007) (Fig. 2)

Turang Tepe consists of a main tepe and some lower mounds: Iron IV period remains were identified in level VA, but only in the main mound, and there is no evidence that the plain was occupied during this period (Deshayes 1976; Deshayes 1979; Boucharlat 2005). The materials from the Iron IV period are limited in quantity and it takes careful study to distinguish them from those of Iron III. The same goes for the architecture, which does not differ significantly from that of Iron II and III, or indeed from that of the Seleuco-Parthian period (Boucharlat 2005).



Fig. 2: Golestan, Gorgan and Khorasan areas.

The Iron IV remains from Yarim Tepe are mentioned in a small number of publications and a survey report (Crawford 1963; Kohl - Heskell 1980). Āq Tepe is a graveyard with 16 tombs dated to the Iron III-IV period, and Narges Tepe has been investigated by means of eleven trenches conducted on behalf of the Iranian Center for Archaeological Research. Unfortunately, the data on the materials from these two sites are unpublished or not very well documented.

The recent excavation of Tappeh Rivi, located in North Khorasan, brought to light new evidence of the Iron IV period in this part of Iran. Since 2012, thanks to the presence of the Iranian Cultural Heritage, Handicrafts and Tourism Organization, joined in 2016 by the Tehran branch of the Deutsches Archäologisches Institut, the Tappeh Rivi Project (TRP) was launched. The project's purpose is the recovery and protection of the site (Jafari 2013; Jafari 2015; Jafari - Thomalsky 2016; Jafari *et al.* 2019), which is threatened by modern activities, especially those related to the extraction of clay. At least two monumental buildings demonstrate the superregional importance of the site from the Iron IV period onwards, in a region of Iran that can be considered unexplored in archaeological terms (Jafari - Thomalsky 2016).

Affected by a similar lack of knowledge is the South Khorasan region. Nevertheless, near Birjand, the recent excavations at Tappeh Takhchar Abad and the surveys at Qal'eh Asrar and Do-Kuhe, directed by Mohsen Dana of the Iranian Research Institute of Cultural Heritage and Tourism (RICHT), have found new evidence, especially for a monumental building dated to the Iron IV period (Dana 2018; 2019).

### **3. Research in the south-eastern area**

The main evidence of the Iron IV period in this south-eastern part of Iran was brought to light at the site of Dahane-ye Gholaman, located about 30 kilometres southeast of Zabol city in the Sistan region. The first excavations were conducted by the IsMEO Italian archaeological mission (directed by U. Scerrato) in the 1960s and 1970s (Scerrato 1962; 1966), followed by the archaeological mission of the Iranian Cultural Heritage, Handicrafts and Tourism Organization (directed by S.M.S. Sajjadi) between 2000 and 2006 (Sajjadi 1997; Sajjadi 1998). Geophysical prospections were then conducted under the aegis of the Iranian Cultural Heritage, Handicrafts and Tourism Organization and the Iranian Center for Archaeological Research (directed by K. Mohammadkhani) between 2008 and 2012 (Mohammadkhani 2012; 2018). The archaeological evidence recovered includes residential, public, administrative and religious structures, and indicates intense, planned urbanisation (Fig. 3).

In southern Sistan, at least 110 sites possibly from the Iron IV period were detected during a recent survey of the area (Mehrafarin 2012; 2016), revealing pottery production similar to what is attested at several other sites from the same period in Iran and neighbouring countries (Maresca 2018). In the first phase of this survey, conducted in the northern part of Sistan in 2008, the only site discovered was that of Dahane-ye Gholaman. In the second phase (Mehrafarin 2012: fig. 2), conducted in the desert area in the southern part of the region, Iron IV sites of varying dimensions were found (Mehrafarin 2016). The chronology of the sites was determined, the pottery was classified and the surface finds were recorded on the basis of evidence from Dahane-ye Gholaman, Sorkh Dagh (Afghanistan), Pasargadae and Persepolis (Mehrafarin 2016).

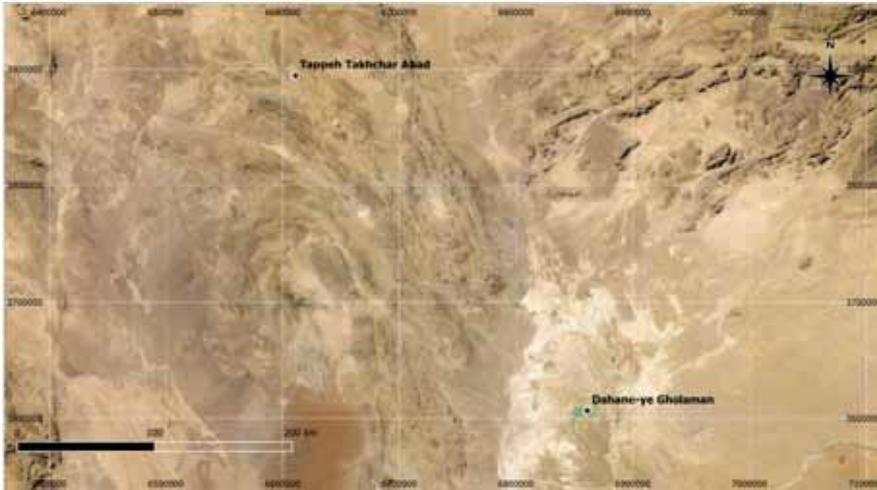


Fig. 3: south Khorasan and Sistan areas.

### 3.1. Pottery in context

#### *Surveys in North-Eastern Iran*

In the Iron IV period the area of the Atrak valley and Esfarāyen plain still had strong links with Central Asia, as seen in the Yaz II and III materials found in several sites (Venco 1980; Vahdati 2008). According to Lecomte (Lecomte 2005: 461-478), the Archaic Dehistan culture and relative pottery assemblage continued through the Iron IV period. In Central Asia however, the pottery is basically homogeneous, bearing no resemblance to that of the Iranian plateau. The Iron IV materials of the Atrak valley continue the trend of the previous period, specifically the Yaz II-III and Archaic Dehistan cultural areas. The most widespread pottery in the Iron IV period in the Atrak valley consists of a red type ranging from red-orange to brown-orange, generally highly burnished and wheel-turned. The most typical shapes are carinated bowls and cylindrical-conical beakers: the similarity to the pottery of Central Asia is evident (Lhuillier - Bendezu Sarmiento 2018; Bruno 2019). The most substantial difference lies in the colour of the clay, that of the Atrak valley being red, while that of Central Asia is buff (Venco 1980).

### *Turang Tepe*

Turang Tepe has yielded few materials from the Iron IV period. According to Boucharlat (Boucharlat 2005), the reddish ware type and some of the shapes of the Iron III period are maintained, although technical elements and morphological details make it possible to determine the chronology, especially for the carinated vessels and ‘bayonet rims’ (Deshayes 1976: fig. 10; Cleuziou 1985: fig. 18 and 24). The dating to the Iron IV period is based on a few pottery shapes similar to those from Pasargadae and a three-winged socket arrowhead. The break with the previous period is marked by the disappearance of the light-coloured wares typical of Iron III, which accounts for the majority of materials recovered from Turang Tepe (Boucharlat 2005).

### *Tappeh Rivi*

The pottery from Tappeh Rivi was recently classified into six main groups, including several sub-variants (Jafari *et al.* 2019), although the classification of vessel forms is still in progress. Due to our incomplete knowledge of the ancient pottery of the region, the classification presented is provisional, but ware groups II and V appear in larger amounts in the Iron IV layers. Ware group II presents colours from light red to orange, with three variants – IIA, IIB and IIC – distinguished by the type of inclusions and the coarseness of the fabric. The surfaces of this ware group can be smoothed, polished or covered with a brownish or buffish slip. The other ware group - V - presents two variants, red (VA) and brown (VB), both characterized by very fine clay and absence of visible mineral inclusions. The surfaces of this ware group can be covered by a reddish or brownish slip. One hypothesis is that this ware group represented a specific fine ‘palace ware’ (Jafari *et al.* 2019).

### *Tappeh Takhchar Abad*

Mohsen Dana has sought to determine the common pottery characteristics of the region, proposing a type of ware painted with bird motifs as diagnostic of the Iron IV period in eastern Iran (Dana 2019). The most frequent forms are carinated, tulip-shaped and S-shaped bowls.

*Dahane-ye Gholaman (South-Eastern Iran)*

Dahane-ye Gholaman has been the subject over time of many pottery studies and analyses, being one of the most extensively studied sites of the Iron IV period, but data on some of the pottery remains unpublished. From the old Italian excavations conducted by Is.I.A.O., eleven different ware groups were distinguished among the pottery assemblage stored in Italy (Maresca 2010; 2019). Fabric DG1 presents a light red colour with medium-sized and large mineral and plant tempers and the surfaces are mostly covered by a whitish slip. It is attested in thick-walled handmade shallow basins, handmade globular bowls, large wheel-made globular jars with a wide shallow neck and large wheel-made hole-mouthed cylindrical jars. Fabric DG1.1 presents colours from reddish to yellow, with limited amounts of small mineral tempers, and the surfaces are covered by a whitish slip, sometimes smoothed. It is attested in shallow handmade truncated-cone basins with very thick walls, large wheel-made truncated-cone basins with moulded rims, truncated-cone bowls and many medium-sized and large globular and cylindrical jars. Fabric DG1.2 presents colours from reddish to yellow with limited amounts of small mineral tempers, and the surfaces are covered by a whitish slip. It is found in very large wide-mouthed truncated-cone basins with moulded rims, carinated bowls and medium-sized and large globular and cylindrical jars. Fabric DG2 is a rough ware with colours ranging from reddish to yellow and medium-sized and large mineral tempers. It is attested in globular cooking pots. Fabric DG3 presents colours from reddish to yellow with limited amounts of small mineral tempers, and the surfaces are covered by a pinkish or reddish slip, sometimes smoothed or burnished. It is attested in tall truncated-cone bowls with burnished surfaces decorated with parallel horizontal lines near the rim and zigzag vertical lines on the lower part of the vessel, burnished shallow dishes, medium-sized and small truncated-cone and hemispherical bowls and ovoid jars. Fabric DG3.1 presents colours from reddish to yellow with large amounts of small mineral tempers, and the surfaces are covered by a pinkish slip, sometimes smoothed or burnished. It is attested in truncated-cone basins with moulded rims, carinated bowls, small truncated-cone bowls and biconical

collared bowls, often burnished. Fabric DG3.2 presents colours from reddish to yellow with limited amounts of very small, barely visible mineral tempers, and the surfaces are sometimes covered by a slip or burnished. It is found in thin-walled and truncated-cone burnished bowls, shallow burnished dishes, globular bowls with plain or ribbed wall profiles, carinated bowls with a prominent horizontal rim and small and medium-sized ovoid jars with shallow narrow necks. Fabric DG3.3 presents a light red colour with limited amounts of very small mineral tempers, and the surfaces are mostly covered by a slip and smoothed. It is seen in several types of carinated bowls, burnished biconical collared bowls with vertical or inverted necks, hemispherical bowls with rounded rims and cylindrical and oval jars. Fabric DG3.8 presents a light red colour with small and medium-sized mineral tempers, and the surfaces are covered by a slip, sometimes burnished. It is attested in large truncated-cone basins with moulded rims, hemispherical bowls, carinated bowls with moulded horizontal rims, truncated-cone thin-walled bowls with burnished surfaces and biconical collared bowls. Fabric DG4 presents colours from light reddish to brown with large amounts of small mineral tempers, and the surfaces are covered by a slip. It is seen in medium-sized ovoid jars with shallow necks and rounded rims, larger globular jars with wide shallow necks and bowls. Fabric DG7 is a medium-fired rough ware with large amounts of highly visible mineral tempers. It is limited to a single rim fragment of a small handmade cooking pot with a shallow narrow neck (Maresca 2010; 2019).

Two characteristics of the site are the relative morpho-typological homogeneity of the ceramic assemblage and the high degree of standardisation in the manufacturing processes (Genito 1990; Maresca 2010). Some shapes, such as the large cylindrical and globular jars with lower carination, are associated with the Central Asian Late Bronze Age pottery tradition, while others reflect a more local ceramic horizon, such as the bowls with a carinated profile and the cylindrical-conical beakers. The pottery assemblages from Nad-i Ali period I (Ghirshman 1939), Mundigak VI and VII (Casal 1961) and Kandahar (Whitehouse 1978) in Afghanistan are considered to be the best sources of parallels with the pottery attested in Dahane-ye Gholaman (Genito 1990; Maresca 2019).

Iranian archaeologists subsequently studied the pottery assemblage from the site. The pottery was classified into eight groups based on the colour of the surfaces and the morphological characteristics (Zehbari *et al.* 2015a). The researchers published articles on the cultural interactions between Zranka (the ancient name of Dahane-ye Gholaman) and other eastern Satrapies of the Achaemenid empire, focusing on the pottery tradition (Mehrafarin *et al.* 2013). They also compared the pottery from the eastern Iranian territories with that of the Province of Fars during the Achaemenid period (Zehbari - Mehrafarin 2014) and examined the relationships between pottery production at Dahane-ye Gholaman and the western regions of the Achaemenid empire (Zehbari *et al.* 2014). One study specifically focused on the cylindrical-conical beakers attested at the site (Zehbari *et al.* 2015b). The rims of these cylindrical-conical beakers were classified into seven groups and twenty-one variants based on their profiles. The morphology of this type of beaker, unknown in the ceramic assemblages of other Iron IV sites, suggests that they are an original vessel shape from Dahane-ye Gholaman. The Iranian team also performed archaeometric analyses, especially by X-Ray Diffraction (XRD) and X-Ray Fluorescence (XRF), on pottery fragments from Dahane-ye Gholaman (Sarhaddi Dadian *et al.* 2015; 2017), demonstrating that the raw material for pottery production was local.

#### **4. Conclusion**

In conclusion, information regarding the Eastern part of Iran during the Iron IV period is scarce, and there are essentially two only sites relating to this period that have been continuously investigated and are the subject of published descriptions: Tappeh Rivi in the north and Dahane-ye Gholaman in the south. Clearly, the evidence is not sufficient to propose any type of regional model, and for now we can only highlight the characteristics that emerge from the ceramic study, in any case still of a preliminary nature. The differences in pottery production between the north and south of the country's eastern regions are considerable: in summary,

we can say that in the north there is a greater trend towards the production of local shapes with a minimal presence of imports, as can be seen from the forthcoming studies of Tappeh Rivi, while in the south there are closer contacts and influences with Central Asia and, in part, with the great Achaemenid capitals of the west, as shown by the site of Dahane-ye Gholaman. So far, researchers have not found any major points of contact between the material cultures of these two sites, although this may also depend, at least partially, on the type of context in which the sites are situated. However, as research progresses, it is expected that new details may appear that will lead to a better understanding of these aspects.

## Bibliography

- Abbasi, Q.A., 2007. Narges Tappeh-ye dasht-e Gorgān [Narges Tappeh of the Gorgān Plain. *Archaeological Reports* 7/2, Tehran, 249-261 (in Persian).
- Askari Chaverdi, A., Callieri, P., and E. Matin, 2016. Tol-e Ajori: a Monumental Gate of the Early Achaemenian Period in the Persepolis Area. The 2014 Excavation Season of the Iranian-Italian Project "From Palace to Town". *Archäologische Mitteilungen aus Iran und Turan* 46, 223-254.
- Atai, M.T., and Q.A. Abbasi, 2008. Narges Tappe va nešāne-hā-yī az dowre-ye Mād va Haḡhāmānešī dar Gorgān (= Narges Tepe and evidence from the Median and Achaemenian periods in the plain of Gorgan). *Iranian Journal of Archaeology and History* 44, 42-55 (in Persian).
- Bessenay-Prolonge, J., and R. Vallet, 2018. From Bronze Age to Iron Age in Northeast Iran: the Case of Tureng Tepe. In B. Horejs, C. Schwall, M. Luciani, M. Ritter, M. Guidetti, R.B. Salisbury and T. Bürge (eds.), *Proceedings of the 10th International Congress on the Archaeology of the Ancient Near East, Wien 25-29 April 2016 vol.1*, Harrassowitz Verlag, Wiesbaden, 119-130.
- Boucharlat, R., 2005. Iran. In P. Briant and R. Boucharlat (eds.), *L'archéologie de l'Empire Achéménide: Nouvelles Recherché*, Éditions de Boccard, Paris, 260-264.
- Boucharlat, R., and E. Haerinck, 1992. Ceramic. XI. Achaemenid. In E. Yarshater (ed.), *Encyclopaedia Iranica* 5/3, 302-304.
- Bruno, J., 2019. Between the Iranian Plateau and Central Asia: the Ceramic Complex of the Upper Atrek Valley during the Achaemenid Period. In B. Genito and G. Maresca (eds.), *Ceramics and the Archaeological Achaemenid Horizon: Near East, Iran and Central Asia*, 109-122.
- Casal, J.M., 1961. *Fouilles de Mundigak I-II* (Mémoires de la Délégation Archéologique Française en Afghanistan, 17), Paris.
- Cleuziou, S., 1985. L'Age du Fer à Tuerng Tepe (Iran) et ses Relations avec l'Asie Centrale. In Éditions du Centre National de la Recherche Scientifique (ed.), *L'Archéologie de la Bactriane Ancienne: actes du Colloque franco-soviétique, Dushanbe (URSS), 27 octobre-3 novembre 1982*, Paris, 175-200.
- Comelio, V., 1981. Ceramica della valle dell'Atrek. Periodo achemenide. In *Memorie della Accademia delle Scienze di Torino*, 5.5/2, 117-25.
- Crawford, V.E., 1963. Beside the Kara Su. *The Metropolitan Museum of Art Bulletin* 22/8, 263-273.

Dana, M., 2018. Preliminary Report of Excavations at Tappe Taxčar Abad; Early Historical Periods in Eastern Iran. In H. Khanali (ed.), *Modares Archaeological Research, Journal of the Scientific Union of Archeology vol. 6-7 (12-13)*, University of Tarbiat Modares (TMU), Tehran, 59-72 (in Persian).

Dana, M., 2019. The Late Iron Age and the Achaemenid Pottery Traditions in Eastern Iran. In Y. Hassanzadeh, A.A. Vahdati and Z. Karimi (eds.), *Proceedings of the international Conference on The Iron Age in Western Iran and Neighbouring Regions, 2-3 Nov. 2019, Kurdistan University, Sanandaj, Iran*, RICHT, National Museum of Iran, ICHHTO Kurdistan Province, Tehran and Sanandaj, Tehran, 392-410.

Deshayes, J., 1976. Rapport préliminaire sur la onzième campagne de fouilles à Torang Tappeh. In F. Bagherzadeh (ed.), *Proceedings of the IVth Annual Symposium on Archaeological Research in Iran, 3rd-8th November 1975*, Tehran, 298-321.

Deshayes, J., 1979. Les niveaux de l'âge du fer à Tureng Tépé. In B. Reimer (ed.), *Akten des VII Internationalen Kongress für Iranische Kunst und Archäologie*, AMI Ergänzungsband 6, 29-34.

Genito, B., 1986. Dahan-i Ghulaman: una città achemenide tra centro e periferia dell'impero. *Oriens Antiquus* 25, 287-317.

Genito, B., 1990. The Most Frequent Pottery Types at Dahān-e Gholāmān (Sistan) and Their Spatial Variability. In M. Taddei and P. Callieri (eds.), *South Asian Archaeology 1987. Proceedings of the Ninth International Conference of the Association of South Asian Archaeologists in Western Europe*, Istituto Italiano per il Medio ed Estremo Oriente, Roma, 587-604.

Genito, B., 2010. The Achaemenid Empire as Seen as from its Eastern Periphery: the Case of Dahan-i Ghulaman in Sistan. Forty Years Later, a Preliminary Revision of Data. In P. Matthiae, F. Pinnock, L. Nigro and N. Marchetti (eds.), *Proceedings of the 6th International Congress on the Archaeology of Ancient Near East vol. 1*, Harrassowitz Verlag, Wiesbaden, 77-92.

Genito, B., 2013. Eastern Iran in the Achaemenid Period. In D.T. Potts (ed.), *The Oxford Handbook of Ancient Iran*, Oxford University Press, Oxford, 622-637.

Genito, B., and G. Maresca (eds.), 2019. *Ceramics and the Archaeological Achaemenid Horizon: Near East, Iran and Central Asia*, Unior Press, Napoli.

Ghirshman, R., 1939. Fouilles de Nad-i-Ali dans le Seistan Afghan. *Revue des Arts Asiatiques* 13/1, 10-22.

Ghirshman, R., 1952. Cinq campagnes de fouilles a Suse (1946-1951). *Revue d'Assyriologie et d'Archéologie Orientale* 46, 1-18.

- Gondet, S., Mohammadkhani, K., Farjamirad, M., Ibnoeirida, N., Zare Kordshouli, F., Karami, H.R., and D. Laisney, 2016. Field Report on the 2015 Current Archaeological Works of the Joint Iran-French Project on Pasargadae and its Territory. *International Journal of Iranian Heritage Studies* 1/1, 61-87.
- Gropp, G., 1995. *Archäologische Forschungen in Khorasan, Iran*, Beihefte zum Tübinger Atlas des Vorderen Orients 84, Wiesbaden.
- Jafari, J., 2013. *The first Season of Archaeological study in Tape Rivi, Samangan plain*. Unpubl. ICAR report, Tehran (in Persian).
- Jafari, J., 2015. *The second Season of Archaeological study in Tape Rivi, Samangan plain*. Unpubl. ICAR report, Tehran (in Persian).
- Jafari, J., and J. Thomalsky, 2016. *The Third Season of Archaeological Studies in Tape Rivi, Samangan plain*. Unpubl. ICAR report, Tehran (in Persian).
- Jafari, J., Thomalsky, J., Farjami, M., Jürcke, F., Lentschke, J., Maas, H., Mohammadkhani, K., Fassbinder, J. and F. Becker, 2019. The Iranian-German Tappe Rivi Project (TRP), North-Khorasan: Report on the 2016 and 2017 fieldworks. *Archäologische Mitteilungen aus Iran und Turan* 48, 77-120.
- Kohl, P.L., and D. Heskell, 1980. Archaeological Reconnaissance in the Darreh-Gaz Plain: a Short Report. *Iran* 18, 160-169.
- Lecomte, O., 2005. The Iron Age of Northern Hyrcania. *Iranica Antiqua* 40, 461-478.
- Lhuillier, J., and J. Bendezu-Sarmiento, 2018. Central Asia and the Interaction Between the Iranian Plateau and the Steppes in Late First Millennium BC: Case Study from Ulug-Depe in Turkmenistan. In M. Minardi and A. Ivantchik (eds.), *Ancient Civilizations from Scythia to Siberia 24, Special Volume: Ancient Chorasmia, Central Asia and the Steppes*, Brill, Leiden, 331-353.
- Maresca, G., 2010. Reconsidering the Pottery from Dahān-i Ghulāmān (Iran, Sistān – 6th century BC): Some Preliminary Production-related Typological Observations. In P. Matthiae, F. Pinnock, L. Nigro and N. Marchetti (eds.), *Proceedings of the 6th International Congress on the Archaeology of Ancient Near East vol. I*, Harrassowitz Verlag, Wiesbaden, 423-442.
- Maresca, G., 2018. Between 'Early' and 'Late' Iron Age in South-Eastern Iran: Notes on the Possibility to Evaluate the 'Achaemenid Impact' on the Area. *Vicino Oriente* XXII, 197-211.
- Maresca, G., 2019. The Pottery from Dahane-ye Gholaman (Sistan): the State of Art. In P.B. Lurje (ed.), *Proceedings of the Eight European Conference of Iranian Studies. Held*

on 14-19 September 2015 at the Hermitage State Museum and the Institute of Oriental Manuscript, State Hermitage Publishers, St Petersburg, 249-270.

Mehrafarin, R., 2012. *Bar Chakâd-e Usheidâ*, Nashr-e Daryaft, Tehran (in Persian).

Mehrafarin, R., 2016. Alexander the Great: in the Realm of Evergetâs. In *Mediterranean Archaeology and Archeometry* 16, 1-8.

Mohammadkhani, K., 2012. Une nouvelle construction monumentale achéménide à Dahaneh-e Gholaman, Sistan, Iran: *Achaemenid Research on Texts and Archaeology* 2012.001, 1-18.

Mohammadkhani, K., 2018. Une ville achéménide à l'est d'Iran: Nouvelles recherches à Dahaneh-e Gholaman, Sistan-Iran. *Acta Iranica* 58, *Hommage à Rémy Boucharlat*, Peeters, Leuven-Paris-Beistol, 325-339.

Sajjadi, S.M.S., 1997. Dahaneh-e Gholaman, Shahr-i Hakhāmaneshi dar Iran 1 (= Dahan-e Gholaman an Achaemenid city in Sistan. Part I). *Iranian Journal of Archaeology and History* 20, 57-33 (in Persian).

Sajjadi S.M.S., 1998. Dahaneh-e Gholaman, Shahr-i Hakhāmaneshi dar Iran 2 (= Dahan-e Gholaman an Achaemenid city in Sistan. Part II). *Iranian Journal of Archaeology and History* 21-22, 37-53 (in Persian).

Sajjadi S.M.S., 2004. Sistan and Baluchistan Project. *Iran* 42, 247-250.

Sajjadi S.M.S., and M. Casanova, 2006. Sistan and Baluchistan Project 2005/2006. *Iran* 44, 347-357.

Sarhaddi-Dadian, H., Ramli, Z., Rahman, N.H.S.N.A., and R. Mehrafarin, 2015. X-Ray Diffraction and X-Ray Fluorescence Analysis of Pottery Shards from New Archaeological Survey in South Region of Sistan, Iran. *Mediterranean Archaeology and Archeometry* 15/3, 45-56.

Sarhaddi-Dadian, H., Moradi, H., Ramli, Z., and V. Purzarghan 2017. X-Ray Fluorescence Analysis of the Pottery Sherds from Dahan-e Ghulaman, the Achaemenid Site in Sistan, East of Iran. *Interdisciplinaria Archaeologica - Natural Sciences in Archaeology* VIII/1, 35-41.

Scerrato, U., 1962. A Probable Achaemenid Zone in Persian Sistan. *East and West* 13, 186-197.

Scerrato, U., 1966. Excavations at Dahaneh-e Gholaman (Sistan-Iran), First Preliminary Report (1962-1963). *East and West* 16, 9-30.

Shahmirzadi, S.M., and J. Nokandeh, 2001. *Aq Tappeh*, Iran Cultural Heritage Organization, Tehran (in Persian).

- Sumner, W.M., 1986. Achaemenid Settlement in the Persepolis Plain. *American Journal of Archaeology* 90/1, 3-31.
- Vahdati, A.A., 2008. Preliminary Report on the Archaeological Survey in Esfarāyen Country, Northeastern, Iran. *Archäologische Mitteilungen aus Iran und Turan* 47, 261-287.
- Venco Ricciardi, R., 1980. Archaeological Survey in the Atrek Valley. *Mesopotamia* 15, 51-72.
- Venco Ricciardi, R., 1981. Prospezione archeologica nell'alta valle dell'Atrek (Khorāsān). *Memorie della Accademia delle Scienze di Torino* 55/2, 93-105.
- Whitehouse, D., 1978. Excavations at Kandahar 1974, First Interim Report. *Afghan Studies* 1, 9-39.
- Zehbari, Z., and R. Mehrafarin, 2014. Moṭāla'aye Taṭbiqi-ye Ṣan'at-e Sofālgari-ye Šarq-e Irān bā Ḥowza-ye Fārs dar Dowra-ye Haḥāmaneši (Nemuna-ye Mowredi: Moḥavveṭa-ye Dahāna-ye Ġolāmān) (= A Comparative Study of the Pottery Industry of Eastern Iran with the Area of Fars during the Achaemenid Period (Case Study: the Site of Dahāne-ye Gholāmān). *Moṭāla'āt-e Honar-e Bumi I* (1), 25-38 (in Persian).
- Zehbari, Z., Mehrafarin, R., Musavi Haji, S.R., and F. Alizadeh, 2014. Moṭāla'a-ye Taṭbiqiye Ṣan'at-e Sofālgari-ye Šahr-e Dahāna-ye Ġolāmān bā Manāteq-e Ġarbi-ye Šāhanšāhi-ye Haḥāmaneši (= A Comparative Study of the Pottery Industry of Dahāne-ye Gholāmān with Western Regions of the Achaemenid Empire). In M.H. Azizi Kharanaghi, M. Kanipour, R. Nazeri and K.A. Niknami (eds.), *Proceedings of the International Conference of Young Archaeologists, October 2013*, University of Tehran Press, Tehran, 367-378 (in Persian).
- Zehbari, Z., Mehrafarin, R., and S.R. Musavi Haji, 2015a. Studies on the Structural Characteristics of Achaemenid Pottery from Dahan-E Gholaman. *Ancient Near Eastern Studies* 52, 217-259.
- Zehbari, Z., Mehrafarin, R., and S.R. Musavi Haji, 2015b. Mo'arrefi-ye Livānhā-ye Bumi- ye Moḥavveṭa-ye Haḥāmaneši-ye Dahāna-ye Ġolāmān [= An Introduction to Local Beakers in the Achaemenid Site of Dahāne-ye Gholāmān]. *Majalla-ye Payām-e Bāstānšenās* 22, 57-77 (in Persian).