

## Some Remarks and Identification of the Λινούσιοι Κοχλίας (Linusian Snails)

### Λινούσιοι Κοχλίας (Linon Salyangozları) Üzerine Bazı Yorumlar ve Tanımlama

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**Abstract:** Linon (Linum) is an ancient settlement located between Parion and Priapos on the Asiatic shore of the Marmara Sea (Propontis). Although little is known about Linon, ancient texts refer to the settlement being a dependency of Parion. This article concerns the Λινούσιοι Κοχλίας (Linusian Snails) which are mentioned in ancient texts without a full description regarding them being provided other than that these snails are declared to be “delicious” and the “best in the world”. Although it has not been determined whether the Linusian snails are marine or terrestrial snails, this paper utilising information gained from ancient texts, as well as modern archaeological reports and interviews with locals, particularly with local fishermen and attempts to indentify the Linusian Snails. The interviews and site trips taken indicate that there are two possibilities amongst modern snail shells found in the region; namely the *Tonna galea* and the *Rapana venosa*. In order to evaluate this information regarding Linon, related information from nearby settlements was also consulted as part of the method employed in this work.

**Keywords:** Propontis • Linon (Linum) • Ancient Fishing • Mollusca • Gastropod

**Öz:** Linon (Linum) Marmara Denizi'nin (Propontis) Anadolu kıyısında Parion ve Priapos antik kentleri arasında yer alan bir antik yerleşimdir. Her ne kadar Linon hakkındaki bilgiler kısıtlı olsa da, antik metinler Linon'un Parion'a bağlı bir yerleşim olduğunu ifade etmektedir. Bu makalenin konusunu teşkil eden Λινούσιοι Κοχλίας (Linon Salyangozları) antik metinlerde açıklayıcı olmayan bir şekilde, sadece “lezzetli” ve “dünyanın en iyisi” oldukları şeklinde ifade edilmektedir. Linon salyangozlarının, deniz salyangozu veya kara salyangozu oldukları hakkında net bir açıklama bulunmamasına rağmen bu makale kapsamındaki çalışma, antik metinler yanı sıra modern arkeolojik araştırmalara ait rapor ve yayınlarla bölgede yaşayanlar, özellikle yerel balıkçılar, ile yapılan görüşmelerden elde edilen bilgileri birleştirerek Linon salyangozlarının türünü tanımlamayı amaçlamaktadır. Görüşmelerden alınan bilgilerin yanı sıra alanda yapılan gezi ve gözlemler, bölgedeki günümüze ait salyangoz kabukları arasında *Tonna galea* ve *Rapana venosa* olmak üzere iki ihtimal ortaya koymaktadır. Tespit edilen ve ortaya konacak bilginin daha detaylı değerlendirilmesini sağlayabilmek için ayrıca çevre kentlerde elde edilen bilgilerin de baz alındığı bir çalışma yöntemi benimsenmiştir.

**Anahtar Kelimeler:** Propontis • Linon (Linum) • Antik Balıkçılık • Mollusca • Gastropod

### Introduction

Linon (Fig. 1), is mentioned as being a dependency of Parion along with Hermaion (Hermaeum/Hermotos), Pitya, Iliokolone and Sminthia<sup>1</sup>. Although excavations have not taken place in Linon to

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<sup>1</sup> Str. XIII. 1. 15, 19, 48; Arr. *anab.* I. 12. 6; Polyain. *Strat.* VI. 24; Janke 1904, 135-136; Leaf 1923, 87-88, 98, 100; *I.Lampsakos*, 51-52, 105 fn. 5; Hammond 1980, fn. 23; Körpe 2008, 375, 388, 396; Preteux 2009, 340, 343 fn. 40; Yılmaz 2021, 6.

date, archaeological surveys have found suitable locations for the settlement<sup>2</sup>. Other than the location of Linon, the only information presented by ancient sources are its prized Linusian snails, which Strabo refers to as being the best in the world<sup>3</sup>.

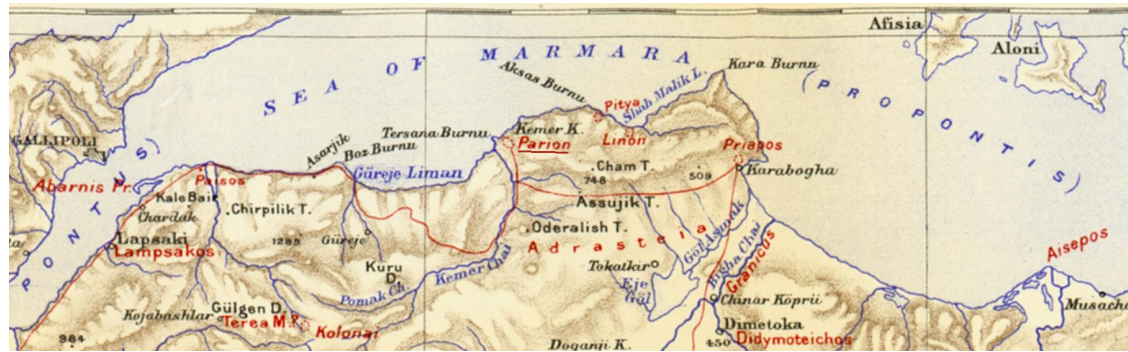


Fig. 1. Map of the Vicinity of Parion, Priapos and Linon (Leaf 1912, Map 1)

With Linon being known as a dependency of Parion it should not be individually evaluated and instead should be evaluated in conjunction with Parion. Parion having a well-known fishing industry together with the vast amount of information which has been brought to light through ancient texts, as well as archaeological data from the excavations taking place since 2005 have been of assistance in this evaluation<sup>4</sup>.

### Parion and Seafood

Parion (Fig. 1) an ancient Greek colony founded in 709 B.C.<sup>5</sup> is known to have had a large harbour<sup>6</sup>. The city was founded on the southern shore of the Propontis and in close proximity to the point where the Propontis and Hellespont meet. Parion, which is now located within the present day Kemer Village of Biga, Çanakkale, in Turkey is still a fishing settlement.

Among the species of seafood procured and consumed in Parion were tuna<sup>7</sup>, dolphin<sup>8</sup>, *kolias* (=Atlantic chub mackerel)<sup>9</sup>, crabs<sup>10</sup>, cigales (=European locust lobster)<sup>11</sup> along with many mollusca

<sup>2</sup> Leaf 1923, 100; Körpe 2008, 375, 388, 396; Keleş & Yılmaz 2022, 537-540.

<sup>3</sup> Str. XIII. 1. 15.

<sup>4</sup> Arkhestr. fr. 56; Plin. nat. XXXII. 53; Ath. Deip. 92d, 116b-c; Cuvier & Valenciennes 1832, 291; Robert & Robert 1950, 80-94 pl. 5; *I. Parion* 5-6; Lytle 2006, 68-69 fn. 75-76 fig. 19; Başaran 2010, 394; Wilkins & Hill 2011, 85; Yılmaz 2015, 64-66 pic. 42,45; 2018, 215; 2021, 104-105, 165-166 res. 223, 387-392; Çelikbaş 2016, 135, 187-189, 226, 326-327, 404-406, 471 kat. no. E23-25, K50-52, U1-2 lev. XLI, XLIII, LVI çiz. 16,28,41; 2018, 191, 215 cat. no. 50 fig. 6; 2021, 409-420; Keleş *et al.* 2018, 191 res. 11; 2019, 596 res. 2.

<sup>5</sup> Roebuck 1983, 113.

<sup>6</sup> Ksen. Hell. I. 1. 13-16.

<sup>7</sup> Robert & Robert 1950, 80-94 pl. 5; *I. Parion* 5; Lytle 2006, 68-69 fn. 75-76 fig. 19; Keleş & Yılmaz 2022, 536 table 1.

<sup>8</sup> Robert & Robert 1950, 80-94 pl. 5; *I. Parion* 5; Lytle 2006, 68-69 fn. 75-76 fig. 19; Keleş & Yılmaz 2022, 536 table 1.

<sup>9</sup> Plin. nat. XXXII. 53; Ath. Deip. 116b-c; Cuvier & Valenciennes 1832, 291; Robert & Robert 1950, 92; Keleş & Yılmaz 2022, 536 table 1.

<sup>10</sup> Ath. Deip. 92d; Keleş & Yılmaz 2022, 536 table 1.

<sup>11</sup> Arkhestr. fr. 56; Ath. Deip. 92d; Wilkins & Hill 2011, 85.

species such as scallops<sup>12</sup>, cockles<sup>13</sup>, mussels<sup>14</sup>, oysters<sup>15</sup>, *Pinna nobilis*<sup>16</sup>, limpets<sup>17</sup> and murex<sup>18</sup>. The murex even being processed in a work-shop adjacent to the Slope Bath of Parion<sup>19</sup>. The mollusca shells were mostly found in middens within the structures of the city<sup>20</sup>, and some from graves<sup>21</sup>, as well as one example being utilised as a *pyxis*<sup>22</sup>.

There are two inscriptions dating to the I. and II. centuries A.D. which give the names of the shoals which were exploited by the local fishing guilds operating from Parion. These fishing guilds were known as the *Neilaion* Fishing Guild<sup>23</sup> and the *Phrou*-Fishing Guild<sup>24</sup>.

Additionally archaeological finds of fishing hooks, netting tools and net weights are also known from Parion<sup>25</sup>.

### Linon and the Linusian Snail

Strabo, mentions the “Linusian snails” as being caught in Linon (Linum) a dependency of Parion<sup>26</sup>. The word describing the creature is Λινούσιοι κοχλίας which can be translated as “Linusian spirals/snails” from which it can be concluded the species referred to was a snail. Although the species is understood to be a snail it is not evident if the species inhabited a terrestrial, marine or a freshwater habitat.

In order to understand the Linusian snail, Linon should be approached and evaluated carefully. Firstly Linon, is mentioned to have been located on the Asiatic shore of the Propontis and situated between the cities of Parion and Priapos (Fig. 1). Strabo further describes Linon as being situated after Pitya whilst travelling to Priapos from Parion<sup>27</sup>. Modern scholars place Pitya in the present day village

<sup>12</sup> Başaran 2010, 394; Yılmaz 2015, 66 pic. 45; 2018, 215; 2021, 165 res. 387; Keleş *et al.* 2019; 596 res. 2; Keleş & Yılmaz 2022, 537 table 1.

<sup>13</sup> Başaran 2010, 394; Yılmaz 2015, 66 pic. 45; 2018, 215; 2021, 165 res. 389; Keleş & Yılmaz 2022, 537 table 1.

<sup>14</sup> Yılmaz 2021, 166 res. 390.

<sup>15</sup> Yılmaz 2015, 66 pic. 45; 2018, 215; 2021, 166; Keleş & Yılmaz 2022, 537 table 1.

<sup>16</sup> Yılmaz 2021, 166 res. 392.

<sup>17</sup> Yılmaz 2021, 166 res. 391.

<sup>18</sup> Keleş *et al.* 2018, 191 res. 11; Çelikbaş 2021, 409-420; Yılmaz 2021, 165-166 res. 388; Keleş & Yılmaz 2022, 537 table 1.

<sup>19</sup> Keleş *et al.* 2018, 191 res. 11; Çelikbaş 2021, 409-420; Yılmaz 2021, 104-105, 165-166 res. 223; Keleş & Yılmaz 2022, 537.

<sup>20</sup> Yılmaz 2015, 66 pic. 45; 2018, 215; Keleş & Yılmaz 2022, 537.

<sup>21</sup> Başaran 2010, 394; Keleş *et al.* 2019, 596 res. 2; Yılmaz 2021, 165 res. 387.

<sup>22</sup> Keleş *et al.* 2019, 596 res. 2; Yılmaz 2021, 165 res. 387; Keleş & Yılmaz 2022, 545 fig. 5.; for similar example see Karali 1999, 21 fig.13B.

<sup>23</sup> Robert & Robert 1950, 80-97 pl. 5; *I.Parion* no. 5; Purcell 1995, 146-147 fig. 10.1; Lytle 2006, 68-70 fn. 75-78 fig. 19; Bekker-Nielsen 2010, 194; Bursa 2010, 36-37; Keleş & Yılmaz 2022, 547.

<sup>24</sup> Robert & Robert 1950, 89-96; *I.Parion* 6; Bursa 2010, 37; Keleş & Yılmaz 2022, 547.

<sup>25</sup> Yılmaz 2015, 64 Pic. 42; Çelikbaş 2016, 135,187-189, 226, 326-327, 404-406, 471 kat. no. E23-25, K50-52, U1-2 lev. XLI, XLIII, LVI çiz. 16,28,41; 2018, 191, 215 cat. no. 50 fig. 6; Keleş & Yılmaz 2022, 542 fig. 3.

<sup>26</sup> Str. XIII. 1. 15.

<sup>27</sup> Str. XIII. 1. 15.

of Değirmencik<sup>28</sup> and Linon to Şahmelek Beach<sup>29</sup> which is located just to the east of the fishing village of Aksaz. Judging Linon as being a coastal settlement and the adjacent Aksaz village being a fishing village it can be deduced that Linon was most likely also a fishing village. When the word λινov (*linon*) is taken into consideration we see it means either linen (flax) or fishing line<sup>30</sup>. Combining the meaning and location of Linon, the logical conclusion is that the settlement was a fishing village and that the species was a marine snail.

Local fishermen from Kemer village who fish regularly in the region report two species of marine snails that are today found in the vicinity of Aksaz village and Şahmelek Beach: the veined rapa whelk (*Rapana venosa*) and the giant tun<sup>31</sup> (*Tonna galea*) (Fig. 2). Since the *Rapana venosa* is known as an invasive (alien) species originating from the Western Pacific Ocean and carried in the ballast of modern freight ships<sup>32</sup> it can be concluded the Linusian snail is most likely to be identified with the giant tun (*Tonna galea*) species, rather than with the veined rapa whelk (*Rapana venosa*). Körpe (2008), carrying out surveys in the area, mentions large marine snails being found in the area of Aksaz-Şahmelek and many fragments of their shells being found on the shore<sup>33</sup>. It should be noted that the giant tun (*Tonna galea*) is a large edible mollusca with sizes known to exceed 29 cm in height, with the average height being 15 cm and that they can be found at depths ranging from 4 to 120 m<sup>34</sup>. Recent studies reveal giant tun (*Tonna galea*) as one of the species found in the Sea of Marmara, where it is listed among the endangered or threatened species, and, that in the Sea of Marmara it is to be found within depths from 11 to 50 m<sup>35</sup>.



Fig. 2. Photographs of a Giant Tun (*Tonna galea*) Found on the Aksaz-Şahmelek Shores (M. D. Yılmaz)

Fellows (1838) in reporting his observations mentions masses of shells in the form of middens on the hills along the coast of Dardanelles<sup>36</sup>. He further describes a kind of “brown shell-fish, in form similar to a large snail” being consumed in great quantities in Çanakkale<sup>37</sup>, which matches the description for

<sup>28</sup> Leaf 1923, 87-88; Körpe 2008, 396.

<sup>29</sup> Leaf 1923, 87-88; Körpe 2008, 388.

<sup>30</sup> Bekker-Nielsen 2002, 218. Also mentioned by Oppianus in his “Halieutica” (Opp. 3.73-75).

<sup>31</sup> Karali 1999, 137.

<sup>32</sup> Mann *et al.* 2004, 3-4; Erik 2011, 4.

<sup>33</sup> Körpe 2008, 388 fn. 325.

<sup>34</sup> Kastanevakis *et al.* 2008, 88; Doxa *et al.* 2011, 304.

<sup>35</sup> Öztürk *et al.* 2014, 870-871 table 1.

<sup>36</sup> Fellows 1838, 83.

<sup>37</sup> Fellows 1838, 83.

giant tun (*Tonna galea*). Fellows (1838), also provides information of this big sea snail being the most common in Constantinople's markets, although not being native to the sea there<sup>38</sup>.

### Material and Methods

In order to collect the data required and evaluate this evidence for the conclusion of this work, firstly ancient and modern written sources were consulted, where information was presented regarding the "Linusian snails"<sup>39</sup> and the location of Linon (Linum)<sup>40</sup>. After evaluating the location and nature of the snail, interviews were made with local fishermen. The interviews resulted in these fishermen sharing their knowledge of the giant tun (*Tonna galea*) (Fig. 2) and veined rapa whelk (*Rapana venosa*) shells with the author: which they reported were to be found in the Şahmelek-Aksaz waters. Further research was carried out in order to confirm these species with observations of previous researchers<sup>41</sup>. Having two types of sea snails known in in the Şahmelek-Aksaz area, further research was then carried out in order to understand the natural habitat of both species<sup>42</sup>.

### Conclusion

Having identified the Linusian snail as the giant tun (*Tonna galea*), and with Linon in antiquity being a dependency of Parion, the Linusian snail should be included in the list of species in Parion's fishing industry as these mollusca would have been transported to Parion and then consumed by the masses or even be exported as other seafood products from Parion are thought to have been exported in the form of *garum*, salted fish or dried fish.

Judging the depth at which the giant tun (*Tonna galea*) is found, the procuring of such mollusca would have been carried out utilising fishing nets and vessels. This form of fishing would have been conducted by a fishing guild, of which two are known from Parion: namely the *Neilaion* Fishing Guild<sup>43</sup> and the *Phrou-* Fishing Guild<sup>44</sup>. The names of these fishing guilds being the names of the shoals and areas in which they operated may indicate that a list of guilds could have included guilds who fished the shores of Aksaz and Şahmelek Beach. Although in order to arrive at conclusions regarding the respective fishing guild operating at Aksaz and Şahmelek Beach further information in respect to these fishing guilds in antiquity is required.

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<sup>38</sup> Fellows 1838, 94-95.

<sup>39</sup> Str. XIII. 1. 15.

<sup>40</sup> Leaf 1923, 100; Körpe 2008, 375,388,396; Str. XIII. 1. 15.

<sup>41</sup> Fellows 1838, 83,94-95; Körpe 2008, 388 fn. 325.

<sup>42</sup> Mann *et al.* 2004, 3-4; Kastanevakis *et al.* 2008, 88; Doxa *et al.* 2011, 304; Erik 2011, 4; Öztürk *et al.* 2014, 870-871 table 1.

<sup>43</sup> Robert & Robert 1950, 80-97 pl. 5; *I.Parion* 5; Purcell 1995, 146-147 fig. 10.1; Lytle 2006, 68-70 fn. 75-78 fig. 19; Bekker-Nielsen 2010, 194; Bursa 2010, 36-37.

<sup>44</sup> Robert & Robert 1950, 89-96; *I.Parion* 6; Bursa 2010, 37.

## BIBLIOGRAPHY

- Başaran C. 2010, "Parion 2008 Kazıları". *Kazı Sonuçları Toplantısı* 31/I, 393-410.
- Bekker-Nielsen T. 2002, "Nets, Boats and Fishing in the Roman World". Ed. O. Thomsen, *Classica et Mediaevalia: Revue Danoise de Philologie et d'Historie*, Vol. 53. Copenhagen, 215-233.
- Bekker-Nielsen T. 2010, "Fishing in the Roman World", Eds. T. Bekker-Nielsen & D. Bernal Casasola, *Ancient Nets and Fishing Gear: Proceedings of the International Workshop on "Nets and Fishing Gear in Classical Antiquity: A First Approach"*. Cádiz, 187-203.
- Bursa P. 2010, *Antikçağ'da Anadolu'da Balık ve Balıkçılık*. İstanbul.
- Cuvier B. & Valenciennes M. 1832, "Account of Common Mackerel, (Scomber, scombrus, Lin.) and the Garum of the Ancients". *The Edinburgh Journal of Science* VI, 286-293.
- Çelikbaş E. 2016, *2005-2014 Parion Kazısı Metal (Bronz-Demir-Kurşun) Buluntuları*. Yayınlanmamış Doktora Tezi, Atatürk Üniversitesi. Erzurum.
- Çelikbaş E. 2018, "Metal Objects from the Theater". Eds. C. Başaran & H. E. Ergürer, *Roman Theater of Parion: Excavations, Architecture and Finds from 2006-2015 Campaigns*. Çanakkale, 185-216.
- Çelikbaş E. 2021, "A Preliminary Assessment on a Possible Parion Murex Workshop". Ed. D. Katsonopoulou, *Paros V: Paros Through the Ages: From Prehistoric Times to the 16th Century AD - Proceedings of the Fifth International Conference on the Archaeology of Paros and the Cyclades: Paroikia, Paros, 21-24 June 2019*. Athens, 409-420.
- Doxa C. K., A. Steriotti, M. Kentouri & P. Divanach 2011, "Encapsulated Development of the Marine Gastropod *Tonna galea* (Linnaeus, 1758) in Captivity". *Journal of Biological Research Thessaloniki* 16, 304-307.
- Erik G. 2011, *Orta Karadeniz'de Deniz Salyangozu'nun (Rapana venosa Valenciennes., 1846) Bidonla Avcılığı, Yavru Yetiştiriciliği ve Bazı Biyolojik Özelliklerinin Belirlenmesi*. Yayınlanmamış Doktora Tezi, Sinop Üniversitesi. Sinop.
- Fellows C. 1838, *A Journal Written During an Excursion in Asia Minor*. London.
- Hammond N. G. L. 1980, "The Battle of the Granicus River". *Journal of Hellenic Studies* 100, 73-88.
- Janke A. 1904, *Auf Alexanders des Grossen pfaden: Eine Reise Durch Kleinasien*. Berlin.
- Karali L. 1999, *Shells in Aegean Prehistory*. Oxford.
- Katsanevakis S., E. Lefkaditou, S. Galinou-Mitsoudi, D. Koutsoubas & A. Zenetos, "Molluscan Species of Minor Commercial Interest in Hellenic Seas: Distribution, Exploitation and Conservation". *Mediterranean Marine Science* 9/1, 77-118.
- Keleş V. & M. D. Yılmaz 2022, "Fishing and the Processing of Seafood in Parion", Eds. M. Bentz & M. Heinzemann, *Proceedings of the 19th International Congress of Classical Archaeology Cologne/Bonn, 22-26 May 2018: Archaeology and Economy in the Ancient World Vol. 53: Sessions 2-3 - Single Contributions*. Heidelberg, 215-233.
- Keleş V., H. E. Ergürer, H. Kasapoğlu, E. Çelikbaş, A. Yılmaz, K. Oyarçin, B. E. Kasapoğlu, M. D. Yılmaz & İ. Akkaş 2018, "Parion 2016 Sezonu Kazı ve Restorasyon Çalışmaları". *Kazı Sonuçları Toplantısı* 39/I, 183-210.
- Keleş V., H. E. Ergürer, H. Kasapoğlu, E. Çelikbaş, A. Yılmaz, K. Oyarçin, B. E. Kasapoğlu, M. D. Yılmaz & İ. Akkaş 2019, "Parion 2017 Sezonu Kazı ve Restorasyon Çalışmaları". *Kazı Sonuçları Toplantısı* 40/III, 595-616.
- Körpe R. 2008, "Troas Bölgesi Antik Kentleri". Ed. M. Demir, *Çanakkale Savaşları Tarihi: Cilt I*. İstanbul, 349-411.
- Leaf W. 1912, "Notes on the Troad". *The Geographical Journal* 40/I, 25-45.
- Leaf W. 1923, *Strabo on the Troad: Book XIII, Cap. I*. London.
- Lytle E. 2006, *Marine Fisheries and the Ancient Greek Economy*. Unpublished PhD Dissertation, Duke University. Durham.

- Mann E., A. Occhipinti & J. M. Harding (Eds.) 2004, *Alien Species Alert: Rapana Venosa (veined whelk)*(ICES Cooperative Research Report No. 264). Copeanag.
- Öztürk B., A. Doğan, B. Bitlis-Bakır & A. Salman 2014, "Marine Molluscs of the Turkish Coasts: An Updated Checklist". *Turkish Journal of Zoology* 38, 832-879.
- Preteux F. 2009, "Parion et Son Territoire à L'époque Hellénistique: Un Exemple d'Organisation de la Chôra sur le Rivage de la Propontide". Eds. H. Bru, F. Kirbihler & S. Lebreton, *L'Asie Mineure Dans l'Antiquité: Échanges, Populations et Territoires*. Rennes, 335-350.
- Purcell N. 1995, "Eating Fish: the Paradoxes of Seafood". Eds. J. Wilkins, D. Harvey & M. Dobson, *Food in Antiquity*. Exeter, 132-149.
- Robert J. & Robert L. 1950, *Hellenica: Recueil d'Épigraphie de Numismatique et d'Antiquités Grecques: Vol. 9 Inscriptions et Reliefs d'Asie Mineure*. Paris.
- Roebuck C. 1983, *Ionian Trade and Colonization*. Chicago.
- Wilkins J. & Hill S. 2011, *Archestratus Fragments from The Life of Luxury: A Modern English Translation with an Introduction and Commentary* (Revised Edition). London.
- Yılmaz A. 2015, "Roman Bath". Ed. C. Başaran, *The Flourishing City of Ancient Troad: Parion*. Trans. V. Keleş & M. D. Yılmaz, İstanbul, 57-66.
- Yılmaz A. 2018, "The Roman Bath of Parion". Ed. D. Katsonopoulou, *Paros IV: Paros and its Colonies - Proceedings of the Fourth International Conference on the Archaeology of Paros and the Cyclades: Paroikia, Paros, 11-14 June 2015*. Athens, 209-219.
- Yılmaz M. D. 2021, *Parion Su Yolları (Temin-Dağıtım-Tahliye)*. Yayınlanmamış Doktora Tezi, Atatürk Üniversitesi. Erzurum.