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Maciej Kokoszko, Krzysztof Jagusiak, Zofia Rzeźnicka (Łódź)

Rice as a Foodstuff in Ancient and Byzantine *Materia Medica*[1]

1. A brief history of rice in the Mediterranean in Antiquity and Byzantium

Rice (*Oryza* L.) is a genus of plants belonging to the Poaceae family (*Poaceae* Barnh.), previously called grasses (*Gramineae* Juss.). The genus includes more than twenty species grouped in the tribe Oryzeae. Two of these, *Oryza sativa* L. (Asian rice) and *Oryza glaberrima* Steud. (African rice), have been domesticated by man[2]. In the present article we will concern ourselves with the former, since it was the only species known to inhabitants of the Mediterranean world in the researched period.

The domestication of wild rice was a long-lasting process, which took place independently at a number of locations in the eastern part of the Indian Subcontinent and South-East Asia, in specially suited – in terms of geographical conditions – valleys and the deltas of large rivers, such as the Ganges, Brahmaputra, Irrawaddy, Yangtze, or Mekong[3]. The inhabitants of these areas sowed fields with rice as early as between the 6th and 5th millennium B.C.[4], soon making it the staple of their daily diet. With the passage of time, the borders of lands allocated for growing rice

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[2] P. Sobczyk, *Uprawa ryżu*, Warszawa 1952, p. 7; T.T. Chang, *Rice*, [in:] *The Cambridge World History of Food*, vol. I, ed. K.F. Kiple, K.C. Ornelas, Cambridge 2000, p. 133; M. Sweeney, S. McCouch, *The Complex History of the Domestication of Rice*, AoB 100, 2007, p. 951.

[3] J. Li, *Rice*, [in:] *Encyclopaedia of food and culture*, vol. III, ed. S.H. Katz, W.W. Weaver, New York 2003, p. 194. On the role of the territories on the Yangtze in rice domestication cf. F. Parasecoli, *World developments*, [in:] *A cultural history of food in Antiquity*, ed. P. Erdkamp, London–New York 2012, p. 186.

[4] C. Higham, T.L.-D. Lu, *The origins and dispersal of rice cultivation*, An 72, 1998, p. 867–877; J. Li, *op. cit.*, p. 194; T.T. Chang, *op. cit.*, p. 134; M. Sweeney, S. McCouch, *op. cit.*, p. 953; M. Toussaint-Samat, *Histoire de la nourriture naturelle et morale*, Paris 1997, p. 173, 198–213. Although there exist archaeological findings which suggest that rice was used by the inhabitants of Asia as early as 12 thousand years B.C., but there is no clear-cut evidence as whether the crop was wild or domesticated.

expanded in every direction, both as a result of climatic change, which was favourable to rice, and because of the improvement of cultivation methods[5].

For the purposes of the present article, we will focus our attention on the expansion of rice towards the western part of the world. In the Indus Valley, it was known and in all probability cultivated circa 2000 B.C.[6] Next, following the conquest of a cornucopia of Indian kingdoms existing in this area by the Achaemenid monarchy towards the end of the 5th cent. B.C., rice became known to the inhabitants of a considerable part of the Persian Empire[7]. In all certainty, it was through their proxy that the plant reached the Greeks, who in the 5th cent. B.C. by the latest included it in their myth telling of how the goddess Demeter and Triptolemus offered mankind corn, as is indicated, for instance, in one of Sophocles' works[8].

It would, however, be wrong to state that the appearance of the said species exerted a considerable impact on the dietary customs of the Hellenes[9] and representatives of the western satrapies of Persia, or that considerable acreage was allocated to its cultivation. On the contrary, it should be said that rice was not adopted in the Mediterranean Basin on a wide scale, and until the times of Alexander the Great its cultivation did not reach further than the borderland of Babylonia and Khuzestan (actually, sources tell us that this crop was grown in the latter region)[10]. The two main reasons for this state of affairs would be the Mediterranean climate, which rendered the vegetation of rice difficult, and the specificity of local agriculture, which was reluctant to make use of complicated artificial irrigation systems, instead preferring cereal crops that did not require constant watering[11].

It is commonly assumed that the Greek world encountered the wide-scale cultivation of rice, and showed an interest in a more widespread use of the crop

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[5] The stages in which acreage allocated to the cultivation of rice developed have been discussed by Z. Huang (*On the origin of rice agriculture in Southern China and its propagation in East Asia*, CGS 4.4, 1994, p. 289–294) and J. Li (*op. cit.*, p. 194), focusing primarily on the areas of South-East Asia and Western Africa.

[6] A. Dalby, *Food in the ancient world from A to Z*, London–New York 2003, p. 281; G.L. Possehl, *Indus Valley*, [in:] *Encyclopaedia of food...*, vol. II, New York 2003, p. 266; J. McIntosch, *The ancient Indus Valley: New perspectives*, Santa Barbara 2008, p. 113.

[7] T.T. Chang (*op. cit.*, p. 139) is of a different opinion, stating that rice reached the Middle East as early as ca. 1000 B.C., but he does not explain the details of this process.

[8] M. Wilkins, S. Hill, *Food in the Ancient World*, Oxford 2006, p. 33, 132. According to a myth, rice came to Greece from Asia Minor, and this would correspond to the road by which the crop actually reached Europe from the east. Sophocles in his work entitled *Triptolemus* (fr. 609, 1, [in:] *Tragicorum Graecorum fragmenta*, ed. S. Radt, vol. IV, Göttingen 1977) mentions *orindes artos*, namely – as Athenaeus of Naucratis explains (*Athenaei Naucratitae dipnosophistarum libri XV*, III, 110e [75, 31 Kaibel], rec. G. Kaibel, vol. I–III, Lipsiae–Berolini 1887–1890 [cetera: Athenaeus of Naucratis, *Deipnosophistae*]) – a bread baked from rice or Ethiopian sesame seeds.

[9] P. Garnsey, *Food and society in classical Antiquity*, Cambridge 1999, p. 18–19.

[10] A. Dalby, *op. cit.*, p. 281; Maguelone Toussaint-Samat (*op. cit.*, p. 209) precises the date of relative popularity of rice in the region's agriculture as circa the 6th cent. B.C.

[11] R.J. Forbes, *Studies in ancient technology*, vol. III, Leiden 1965, p. 90.

(however still treating it as a botanical and agricultural novelty) only from the time of Alexander the Great's invasion of Persia, i.e. 330/320 B.C. There is also the commonly held view that it was the Hellenic Period that brought about the dispersal of the discussed Far Eastern cereal crop throughout Babylonia, southern Syria and northern Africa, in which regions it was observed, among others, by Aristobulus, who was later cited by Strabo[12]. Nevertheless, it continued to occupy a marginal position in the menu of inhabitants of the Mediterranean Basin, and this state of affairs remained unchanged when the Mediterranean was under the sway of the Romans[13]. In the Roman period, although rice was mentioned by authors such as Horace[14], moreover, listed in medical and gastronomic treatises[15], and even sighted in areas so untypical for the cereal as 6th cent. post-Roman Gaul, it was noted that the product was used only sporadically as a prescription medicine, and viewed as an exotic (imported) delicacy, or as a regional – and not to be trusted – culinary ingredient, and therefore, with all certainty, one can conclude that it did not constitute a significant element of the daily diet[16].

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[12] *Strabonis geographica*, XV, I, 18–27; XVII, 3, 23, 12–14, ed. A. Meineke, vol. I–III, Graz 1969 (cetera: Strabo, *Geographica*). Unfortunately, Strabo's relation does not precise the part of Northern Africa in question. This shortcoming is all the more acute, as Egypt, seemingly obvious in this context, with its natural conditions ideal for the cultivation of rice, was aware of this Far Eastern cereal at most as a rare product imported in small quantities from Asia, cf. D. Brothwell, P. Brothwell, *Food in antiquity. A survey of the diet of early peoples*, Norwich 1969, p. 102. Concerning a summary of the history of rice in the Greek world, cf. N. Marinone, *Il riso nell'antichità greca*, Bologna 1992, p. 15–24.

[13] R. Owen, *Rice*, [in:] *The Oxford companion to food*, ed. A. Davidson, Oxford 1999, p. 663.

[14] The poet mentions the term *tisanarium oryzae*. Thus, he is writing about a sort of soup made from rice and modelled after a famous dish with therapeutical properties, namely the πτισάνη (*ptisáne/tisana*), cf. hereunder – Horace, *Satirae*, II, 3, 155, [in:] idem, *Satires*, trans. F. Villneuve, Paris 1958. Cf. A. Dalby, *Empire of pleasures. Luxury and indulgence in the Roman world*, London–New York 2000, p. 122, 197. In his works, Horace rather frequently introduces gastronomic threads – C.J. Classen, *Horace – A cook?*, CQ 72, 1978, p. 333–348. As a matter of fact, such references are not a feature solely of his output, cf. E. Gowers, *The loaded table. Representation of food in Roman literature*, Oxford 1993, *passim*, in particular 126–179, 280–310; N.A. Hudson, *Food in Roman satire*, [in:] *Satire and society in ancient Rome*, ed. S.H. Braund, Exeter 1989, p. 69–87.

[15] As regards the information contained in these two types of texts, cf. hereunder in the present article.

[16] The staples were first and foremost grain and legumes. On their role in Antiquity cf. T. Braun, *Barley cakes and emmer bread*, [in:] *Food in Antiquity*, ed. J. Wilkins, D. Harvey, M. Dobson, Exeter 1995, p. 25; A. Dalby, *Food...*, p. 162–163, 194; K.B. Flint-Hamilton, *Legumes in ancient Greece and Rome: food, medicine, or poison?*, He 68, 1999, p. 371–385; P. Garnsey, *Food and society...*, p. 15, 119–121; P. Halstead, *Food production*, [in:] *A cultural history of food...*, p. 21–39, esp. 24–27, etc. There was no deviation from the pattern throughout the Byzantine period under discussion. Cf. I. Anagnostakis, *Pallikaria of lentils. The "brave boys" of beans*, [in:] *Flavours and delights. Tastes and pleasures of ancient and Byzantine cuisine*, ed. I. Anagnostakis, Athens 2013, p. 133–137, esp. 136; J.-C. Cheynet, *La valeur marchande des produits alimentaires dans l'Empire byzantin*, [in:] *Food and cooking in Byzantium. Proceedings of the symposium "On food in Byzantium". Thessaloniki Museum of Byzantine Culture, 4 November 2001*, ed. D. Papanikola-Bakirtzi, Athens 2005, p. 35–39; E. Kislinger, *Les chrétiens d'Orient: règles et*

We do not possess precise data that would confirm an increase in the volume of rice crops in the first centuries of the Roman Empire, or in the late Roman / early Byzantine period. It would appear that during this time in the Mediterranean Basin rice was in the main an import from the East. Only the spectacular conquests of the Arabs, starting from the 7th cent., and the developments connected therewith, such as the movement of peoples resulting in an exchange of experience, led to the successful and permanent introduction of new types of plants (including rice) in lands taken over from the Byzantines (under the phenomenon of the so-called 'Arabic agricultural revolution'), and to a favourable change in the approach to such, previously exotic, types of food[17]. In consequence, the intensity and relative ease of communication, as well as cultural unification, which were inherent features of the Arab world, contributed not only to the spread of rice farming, but also to the adoption in the Mediterranean world of sorghum, sugar cane (and therefore sugar), banana trees and other cultivated plants, which – originating from countries with a hot climate – were present on lands that the Arabs had conquered or with which they traded[18].

It may be that this popularisation of rice was somehow impacted by the Arabs' conviction – adopted from the Greeks – that it had therapeutic properties[19]. It should be stressed, as Bernard Rosenberger has emphasised, that the Greek tradition of treating foods as a necessary element of the process of maintaining or restoring health was adopted by Arabic medicine together with the output of the most important physicians of the Greek-Roman cultural circle[20]. Thus, it should be assumed that under the impact of the medical theory of the Greeks and as a result

réalités alimentaires dans le monde byzantin, [in:] *Histoire de l'alimentation*, ed. J.-L. Flandrin, M. Montanari, Paris 1996, p. 327–332, 337–340; J. Koder, *Stew and salted meat – opulent normality in the diet of every day?*, [in:] *Eat, drink and be merry (Luke 12:19). Food and wine in Byzantium. In honour of Professor A.A.M. Bryer*, ed. L. Brubaker, K. Linardou, Aldershot 2007, s. 65–66, 72; idem, *Everyday food in the middle Byzantine period*, [in:] *Flavours and delights...*, p. 139–155, esp. 142–145; M. Kokoszko, T. Wolińska, *Zaopatrzenie Konstantynopola w żywność*, [in:] *Konstantynopol – Nowy Rzym. Miasto i ludzie w okresie wczesnobizantyńskim*, ed. M.J. Leszka, T. Wolińska, Warszawa 2011, p. 462; M. Kokoszko, *Smaki Konstantynopola*, [in:] *Konstantynopol – Nowy Rzym...*, p. 474–487, esp. 474; M. Kokoszko, K. Jagusiak, *Zboża Bizancjum. Kilka uwag na temat roli produktów zbożowych na podstawie źródeł greckich*, ZW 17, 2012, p. 19; M. Kokoszko, Ł. Erlich, *Rola roślin strączkowych (ospria) w diecie późnego antyku i wczesnego Bizancjum (IV–VII w.) na podstawie wybranych źródeł*, ZW 17, 2012, p. 8–18; Φ. Κουκουλες, *Βυζαντινων βιος και πολιτισμος*, vol. V, *Ἀι τροφαι και τα ποτα...*, Ἀθηνα 1952, p. 12–35, etc.

[17] P.B. Lewicka, *Food and foodways of medieval Cairenes. Aspects of life in an Islamic metropolis of the Eastern Mediterranean*, Leiden–Boston 2011, p. 68, 72. As regards the role of Arabs in the dispersal of rice, cf. J. Wilkins, S. Hill, *op. cit*., p. 113.

[18] B. Rosenberger, *La cuisine arabe et son apport à la cuisine européenne*, [in:] *Histoire de l'alimentation...*, p. 347–348.

[19] Cf. below.

[20] *Ibidem*, p. 352; B. Laurioux, *Cuisines médiévales (XIVe et XVe siècles)*, [in:] *Histoire de l'alimentation...*, p. 473.

of the borrowing of Mediterranean culinary customs, the cuisine of the Arabic cultural circle accommodated at least some of the culinary recipes known in antiquity, which were also present – as will be shown in the present study – in the Byzantine dietary tradition, for example boiling rice in milk[21], preparing it in meat broths, or using the product as a thickening ingredient[22]. For this reason, the cereal – although still relatively rare and expensive, but now produced locally (and therefore not as costly an import as before) – became a permanent fixture of tables of the Abbasids, who ruled the former Persian lands and dictated the culinary standards of the time. Gastronomic tradition (both Arabic and European) contains information about a dish called *mamunia/mamonia/ma'mounia/ma'mūniyya*, which is closely connected with the aforementioned dynasty. The term (used to denote a dish of rice in milk, sweetened with sugar and aromatised by the addition of almonds) was to take its name from one of the Abbasid rulers, namely Al-Ma'mun, who reigned between 813 and 833[23]. It is worth adding that the city of Baghdad, which functioned as the dynasty's capital since 762, was located on lands where rice had been known and cultivated from ancient times. We may also add that the cultivation of rice also gained importance, albeit limited, in Egypt under Arabic (and subsequently Turkish) rule[24]. In all probability, here too the development of its cultivation was in a way the natural consequence of the introduction of this cereal to the Nile valley as far back as in antiquity. Furthermore, it is commonly accepted that the Arabs were also responsible for popularising the cultivation of rice in southern Europe[25], for they acclimatised it in Sicily and Spain, namely two of their conquests[26].

In scholarly literature there is an undisputed opinion that rice played a limited role in the diet of early and middle Byzantium. This thesis is supported by Andrew

[21] B. Rosenberger, *op. cit*., p. 352, 358, 363. Regarding the boiling of rice in milk in order to improve the latter, cf. below.

[22] *Ibidem*, p. 354, 357.

[23] P.B. Lewicka, *op. cit.*, p. 147; L. Manson, *Ma'mounia*, [in:] *Oxford companion...*, p. 474; B. Rosenberger, *op. cit.*, p. 348. This dessert later became popular in Europe, cf. B. Laurioux, *op. cit.*, p. 473. Concerning Arabic terminology in Medieval European cuisine, cf. M. Rodinson, *Romania et autres mots en arabe en italien*, Rom 71, 1950, p. 433–449. It may be that an analogous dish was subsequently popular in Provence, and we do have information that it was eaten by the king of France, Louis the Saint (1226–1270), cf. M. Toussaint-Samat, *op. cit.*, p. 209–210.

[24] A. Mikhail, *Nature and empire in Ottoman Egypt. An environmental history*, Cambridge 2011, p. 54–55, in particular an. 45. Paulina Lewicka (*op. cit.*, p. 140) stated, however, that this conviction is not confirmed by archaeological data until the 10th cent.

[25] Its cultivation was introduced to the Po valley only in the 13th cent., but it became common only during the rule of Ludovico Sforza, called il Moro (the ruler of Milan in the years 1494–1499), i.e. in the second half of the 15th century, cf. M. Toussaint-Samat, *op. cit*., p. 209.

[26] M. Montanari, *Modèles alimentaires et identités culturelles*, [in:] *Histoire de l'alimentation...*, p. 322; B. Rosenberger, *op. cit.*, p. 361. On the lands of modern-day Portugal, its cultivation became widespread only in the 15th cent., cf. M. Toussaint-Samat, *op. cit*., p. 209.

Dalby[27], Gilbert Dagron[28], Johannes Koder[29], Phaedon Koukoules[30], Jacques Lefort[31] and Marcus L. Rautman[32], with the 10th cent. being suggested as the moment from which the popularity of this foodstuff in Byzantine lands started to grow[33]. In all probability, however, even after this date rice remained a 'luxury' food in the meaning expounded by Michael Grünbart[34].

The research set forward in the present study did not result in the verification of this generally accepted theory, although we would at the same time like to observe that the authors of medical sources from the 7th cent. wrote considerably more about rice as a therapeutic product than authorities from earlier times, which may suggest that in this period the cereal became a relatively well-known plant in the Mediterranean Basin, including Byzantine lands. Furthermore, it is worth mentioning that rice does not appear solely in Byzantine medical literature. Apart from the genre, it is highly probable that it was itemised as an element of the diet of the Byzantine army in the treatise *De ceremoniis*, written in the 10th cent.[35] Moreover, as a desired dish, spiced with honey, it appears in the Ptochopro-

[27] A. Dalby, *Flavours of Byzantium*, Blackawton–Totnes 2003, p. 80; idem, *Tastes of Byzantium. The cuisine of a legendary empire*, London–New York 2010, p. 80; idem, *The flavours of classical Greece*, [in:] *Flavours and delights...*, p. 19 (where he treats rice as a rarity hardly present at ancient and Byzantine tables).

[28] G. Dagron, *The urban economy, seven-tenth centuries*, [in:] *The economic history of Byzantium*, ed. A. Laiou, vol. II, Washington 2002, p. 445–446.

[29] J. Koder, *Stew and salted...*, p. 65.

[30] Φ. Κουκουλες, *op. cit.*, p. 94. There is only one mention of the cereal in the whole, painstakingly detailed, narrative and this comes up in the context of *dolmadakia* preparation.

[31] J. Lefort, *The rural economy, seventh–twelfth centuries*, [in:] *The economic history...*, p. 231–310) makes no mention of its cultivation, which points to the marginal role of this cereal crop in the economy and diet of Byzantines.

[32] M.L. Rautman, *The daily life in the Byzantine Empire*, Westport 2006, p. 46.

[33] M. Canard, *Le riz dans le Proche-Orient aux premiers siècles de l'Islam*, Ara 6, 1959, p. 113–131. Cf. the latest opinion of Ilias Anagnostakis, which shift the time of the culinary breakthrough towards the turn of the 11th and the 12th cent. – I. Anagnostakis, *Byzantine diet and cuisine. In between ancient and modern gastronomy*, [in:] *Flavours and delights...*, p. 62.

[34] M. Grünbart, *Spartans and Sybarites at the Golden Horn: Food as necessity and/or luxury*, [in:] *Material culture and well-being in Byzantium (400–1453)*, ed. M. Grünbart, E. Kislinger, A. Muthesius, D. Stathakopoulos, Wien 2007, p. 135–139, in particular 138–139. In all probability, however, it never spread considerably – even after the 10th cent. The basis for this observation are the conclusions drawn by Angeliki Laiou (*The agrarian economy, thirteenth-fifteenth centuries*, [in:] *The economic history...*, p. 327), who writes about its cultivation on Crete in the 14th cent., but at the same time points out that there are no data from the same period that would confirm that it was farmed in Thrace or Macedonia. Therefore we think that Chrisi Bourbou has expressed a somewhat overgeneralized (and therefore unfunded) opinion that rice belonged to the crops which were "traditionally" grown in Byzantium – C. Bourbou, *Health and disease in Byzantine Crete (7th–12th centuries A.D.)*, Farnham–Burlington 2010, p. 128. On the whole, the cereal has been mentioned in her research only once on the aforesaid page.

[35] *Appendix ad librum primum. Constantini Imperatoris Porphyrogeniti praecepta Imperatori Romano bellum cogitanti...*, [in:] *Constantini Porphyrogeniti Imperatoris de cerimoniis aulae Byzantinae libri duo*, rec. I.I.

dromic Poems, where it is presented as the food of wealthy monks[36]. Nevertheless, references to rice are infrequent enough to support the opinion that throughout the early and middle Byzantine periods in the Mediterranean Basin, even in spite of all the transformations having taken place, rice remained a product whose consumption was a sign of affluence, and definitely did not constitute the staple of the majority of society.

2. The dietetic properties attributed to rice detailed in ancient and Byzantine *materia medica*

It should be firmly stated that medical sources are an informative and still not satisfactorily used basis for any research in food history, and its value is intrinsically connected with the very nature of ancient and Byzantine tradition of medicine. It is traditionally maintained that Hippocrates was one of the first medics to conclude that foods are in essence medicines[37], which, if consumed in the appropriate circumstances and in the appropriate quantities, will ensure us health. This statement applied to the entirety of foodstuffs ingested by man[38], and thus referred *ex definitione* to all of the groups of food present in his diet. Such a definition resulted in medicine making it a permanent subject of analyses, and over time it achieved the position of one of the most important objects of scientific medical research in Graeco-Roman civilisation[39].

Reiske, vol. I, Bonnae 1829, p. 463–464. Johannes Koder (*Stew and salted...*, p. 65) does, however, admit of the possibility that the term *oirizin* (ὀρύζιν) was not used to denote the expensive rice, but a variety of millet or barley. If so, the other option appears to be more likely since millet was not an overly popular cereal crop in Byzantium, cf. M. Kokoszko, *Smaki Konstantynopola...*, p. 474.

[36] Ptochoprodromus, IV, 319–330, [in:] *Ptochoprodromos*, ed. et trans. H. Eideneier, Köln 1991. The pudding was actually prepared with honey, various other sweets, walnuts and flavoured with quinces. On the recipe cf. J. Koder, *Everyday food...*, p. 152. Concerning the topic of food and feasting as described in the Ptochoprodromic Poems, cf. H. Eideneier, *Ptochoprodromos' Tafelfreud and Tafelleid*, [in:] *Fest und Alltag in Byzanz*, ed. G. Prinzing, D. Simon, München 1990, p. 77–90. Cf. A.-M. Talbot, *Mealtime in monasteries: the culture of the Byzantine refectory*, [in:] *Eat, drink...*, p. 118.

[37] Hippocrate, *De alimento*, 19, [in:] *Œuvres completes d'Hippocrate*, ed. E. Littre, vol. IX, Amsterdam 1962.

[38] Hippocrates' doctrinal system should be recreated on the basis of his entire output. A real wealth of information on this topic may, however, be found in *De natura hominis* (Hippocrate, *De natura hominis*, [in:] *Œuvres completes d'Hippocrate*, ed. E. Littre, vol. VI, Amsterdam 1962) and *De diaeta* (Hippocrate, *De diaeta I–IV*, [in:] *Œuvres completes...*, vol. VI, *passim*). Concerning the assumptions of Hippocratism, and significance of individual foods, cf. V. Nutton, *Ancient Medicine*, London–New York 2007, p. 72–86, in particular 77–85. Regarding the role of food in the entire *Corpus Hippocraticum*, cf. S. Byl, *L'alimentation das le Corpus Hippocratique*, [in:] *Voeding en geneeskunde / Alimentation et medicine. Acten van het colloquium / Actes du colloque Brussel–Bruxelles 12. 10. 1990*, ed. R. Jansen-Sieben, F. Daelmans, Brussel/Bruxelles 1993, p. 29–39.

[39] Concerning the history of dieticians from the times of Galen, cf. K. Bergoldt, *Wellbeing. A cultural history of healthy living*, trans. J. Dewhurst, Cambridge–Malden 2008, p. 30–37, 41–46, 62–72.

In the 2nd cent. A.D., therefore a few hundred years after Hippocrates, Galen adopted the dietetic views of his eminent predecessor[40] and, following their elaboration and development, included them in his considerably more detailed and better articulated theory. Galen's doctrines exerted a strong influence not only on contemporaries, but also on his successors. His followers did not modify their master's opinions, but rather repeated them and, as, for example, Oribasius[41], limited themselves to quoting the adopted theoretical output[42]. It is therefore not surprising that the treatises authored by Galen's successors provide a cornucopia knowledge concerning the theory of ancient dietetics, and also contain numerous comments on culinary practice, thereby constituting an essential source for those wishing to study the history of culinary art[43].

Although rice, as we have already determined, was never a particularly popular crop in antiquity, its properties as a foodstuff have been altogether precisely described in medical literature, and the data contained therein indicate that ancient and subsequently Byzantine dietetics developed a cohesive view of the properties of this Far Eastern cereal. Our research indicates that credit for establishing the subsequently repeated doctrine should go to Dioscurides[44] and Galen[45]. Hippocratic tradition did not refer to rice at all, for in the 5th cent. B.C. this cereal did not play any role in the diet of Greeks, nor had they learned how to use products obtained therefrom in medical procedures. During Hellenistic times, in spite of an increased awareness of this food, rice must have still been

[40] Concerning Galen himself and the main assumptions of Galenism, cf. A. Bednarczyk, *Galen. Główne kategorie systemu filozoficzno-lekarskiego*, Warszawa 1995, *passim*; Z. Gajda, *Do historii medycyny wprowadzenie*, Kraków 2011, p. 146–159; V. Nutton, *op. cit.*, p. 230–247, in particular 240–244.

[41] Regarding the utilisation of Galen's output by this physician, cf. R. de Lucia, *Oreibasios v. Pergamum*, [in:] *Antike Medizin. Ein lexikon*, ed. K.-H. Leven, München 2005, p. 660–661; M. Kokoszko, *Ryby i ich znaczenie w życiu codziennym ludzi późnego antyku i wczesnego Bizancjum (III–VII w.)*, Łódź 2005, *passim*. Basic information concerning his literary activity in the field of dietetics, cf. *ibidem*, p. 14–15.

[42] V. Nutton, *op. cit.*, p. 292–309, in particular 309.

[43] On the topic of the history of food in antiquity and Byzantium, cf. M. Kokoszko, *Smaki Konstantynopola...*, p. 471–472; M. Kokoszko, K. Jagusiak, *Zboża Bizancjum...*, p. 33–34; M. Kokoszko, Z. Rzeźnicka, K. Jagusiak, *Health and Culinary Art in Antiquity and Early Byzantium in the light of De re coquinaria*, SCer 2, 2012, p. 164.

[44] A physician associated with the Roman army, active during the reigns of Claudius and Nero. The author of treatises entitled *De materia medica* and *Euporista vel de simplicibus medicinis*. The works of Dioscurides had a significant impact on the views of Galen and his successors, cf. Z. Gajda, *op. cit.*, 145–146; V. Nutton, *op. cit.*, p. 174–177; M. Stamatu, *Dioskurides*, [in:] *Antike Medizin...*, p. 227–229.

[45] The importance of their output was obvious as early as the 11th cent. to the Byzantine dietetic expert Symeon Seth, cf. *Simeonis Sethi syntagma de alimentorum facultatibus*, Περὶ ὀρύζης, o, ed. B. Langkavel, Lipsiae 1868, p. 75 (cetera: Symeon Seth, *Syntagma*). Concerning Symeon Seth, cf. J. Niehoff-Panagiotidis, *Seth, Symeon*, [in:] *Antike Medizin...*, p. 799–800.

marginal to the main current of interests of Greek culinary and medical art, for the treatises of famous ancient physicians extant in *Deipnosophists* of Athenaeus of Naucratis, which is so full of information (including the reflections of medical authorities), contain no information about it[46]. It is only towards the end of the 1st cent. and the beginning of the 2nd cent. A.D., in all probability due to the sufficient propagation of this cereal in the Mediterranean diet, that doctrines taking into consideration the importance of rice in maintaining health started to be formed. This led to the phenomenon of authors of Byzantine medical encyclopaedias, previously observed by us, citing Dioscurides, Archigenes (1st–2nd cent. A.D.[47]), Crito (1st–2nd cent. A.D.[48]), Galen, Antyllus (2nd–3rd cent. A.D.[49]), or Filumenus (3rd cent. A.D.[50]). Be that as it may, from the beginning of the 2nd cent. A.D. the presence of rice in medical treatises is constant, while information about the cereal is included systematically in dietetic works authored long after Paul of Aegina (7th cent.) wrote his medical encyclopaedia, and for this reason constitutes a good source for showing the evolution of views concerning its application in the medicine and cuisine of the Mediterranean Basin.

We will commence our systematic relation of dietetic views concerning the analysed cereal crop from the first of the abovementioned greats of ancient medicine, who was active in the middle of the 1st cent. A.D. Extant sources clearly indicate

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[46] Cf. an analysis of medical data concerning fish in *Deipnosophists* – M. Kokoszko, *Ryby...*, *passim*.

[47] Archigenes of Apamea – a student of Agatinus, and a physician active during the reign of Emperor Trajan, considered a member of the Eclectic school, cf. F. Kudlien, *Poseidonios und die Ärzteschule der Pneumatiker*, H 90, 1962, p. 419–429; V. Nutton, *op. cit*., p. 204–205.

[48] A physician, who authored a treatise *On cosmetics*. As a military doctor he accompanied the Roman troops on the campaigns to Dacia. Cf. S. Sander, *Die dreißig Schönheiten der Frau. Ärztliche Ratgeber der Frühen Neuzeit*, [in:] *Medizin, Geschichte und Geschlecht: körperhistorische Rekonstruktionen von Identitäten und Differenzen*, ed. F. Stahnisch, F. Steger, Stuttgart 2005, p. 42, an. 4.

[49] A physician of the Pneumatic school, a student of Archigenes and Athenaeus. Although Antyllus was considered as an authority in the field of surgery, he nevertheless devoted a considerable part of his writings to issues of dietetics. The result of this research was, among others, the work Περὶ βοηθημάτων, which comprised four books. Antyllus' sources of knowledge were the works of Athenaeus, Apollonius of Pergamum, Diocles, Rufus and Archigenes. Cf. H. Haberling, *Der Hygieniker und Sportarzt Antyllos*, KWo 14, 1935, p. 1615–1619; R.L. Grant, *Antyllus and his medical works*, BHM 30, 1960, p. 154–147. Concerning certain aspects of the utilisation of the output of this physician in the Byzantine period, cf. M. Kokoszko, *Medycyna bizantyńska na temat aiora (αἰώρα), czyli kilka słów o jednej z procedur terapeutycznych zastosowanych w kuracji cesarza Aleksego I Komnena (na podstawie pism medycznych Galena, Orybazjusza, Aecjusza z Amidy i Pawła z Eginy*, [in:] *Cesarstwo bizantyńskie. Dzieje – religia – kultura. Studia ofiarowane Profesorowi Waldemarowi Ceranowi przez uczniów na 70-lecie Jego urodzin*, ed. P. Krupczyński, M.J. Leszka, Łask–Łódź 2006, p. 87–111.

[50] An eminent Greek physician living in the 3rd cent. B.C. His writings were based on the doctrines of Archigenes, Soranus, Herodotus and Galen. Known and quoted during the Byzantine period, cf. K. Γεωργακοπουλος, *Ἀρχαίοι Ἕλληνες ἰατροι*, Ἀθηνα 1998, p. 454–455; S. Ihm, *Philumenos*, [in:] *Antike Medizin...*, p. 699; M. Wellmann, *Philumenos*, H 43, 1908, p. 373–404.

that Dioscorides classified rice as a cereal plant[51]. He also knew that its farming requires considerable humidity, and for this reason it grows on land that is marshy and boggy. He viewed it as a moderately nutritious food, which slows down the action of the intestines, thus leading to constipation. Furthermore, Dioscurides rated rice as less nutritious than *chóndros* (a coarse flour or fine groats usually made from wheat and emmer[52]). This comment, which probably results from the similarity of appearance and analogous culinary applications of both products, was subsequently repeated in numerous works devoted to dietetics.

Galen, who wrote in the 2nd cent. A.D., classified rice amongst *óspria*[53], which he defined as grains that are not suitable for baking bread[54]. In his evaluation, therefore, he referred more to the traditional culinary applications of the product than to the adopted classification of plants, and this approach differentiated him from his predecessor. We may also surmise that in this description he demonstrated his knowledge of daily practice, not a lack of material competence in the field of botany. What is more, since Galen's classification of rice will then appear systematically in works by Byzantine authors, the doctrinal tradition appears to point towards both the strict observance by dietetics of the period of the doctrine written down by the Pergamenian physician, and to the continuity of the general tendency governing the application of rice in Byz-

[51] He classified it amongst foods called *sítera*, and therefore cereal products (cf. *A Greek-English Lexicon*, ed. H.G. Liddell, R. Scott, [9]Oxford 1996, p. 1601, s.v. σιτηρός [cetera: Liddell-Scott]), cf. *Pedanii Dioscuridis Anazarbei de materia medica libri quinque*, II, 95, 1, 1, ed. M. Wellmann, vol. I–III, Berolini 1906–1914 (cetera: Dioscurides, *De materia medica*).

[52] Concerning *chóndros*, cf. A. Dalby, *Food...*, p. 132.

[53] The term usually referred to leguminous plants, which were only sporadically used for making a flour suitable for baking. If, however, the necessity arose, they were used to bake bread. An example are broad beans, the grains of which were ground to make a flour used for baking a number of different products, including bread, cf. Dioscurides, *De materia medica*, III, 59, 2, 3. Cf. M. Kokoszko, *Smaki Konstantynopola...*, p. 485–487.

[54] *Galeni de alimentorum facultatibus libri*, 524, 11–16, [in:] *Claudii Galeni opera omnia*, ed. D.C.G. Kühn, vol. VI, Lipsiae 1823 (cetera: Galen, *De alimentorum facultatibus*). The statement seems of the utmost importance because of the position of bread as the staple in Antiquity and Byzantium. On different aspects of the role of bread in antiquity but also in the early byzantine period cf. A. Dalby, *Food...*, p. 58–61; idem, *Flavours...*, p. 77–81; idem, *Tastes...*, p. 77–81; idem, *The flavours...*, p. 17–25, esp. 19; H. Eideneier, *Υώμισμα*, BZ 57, 1964, p. 338–339; idem, *Sogenannte christliche Tabuwörter im Griechischen*, München 1966, p. 7–54; P. Garnsey, *Famine and food supply in the Greco–Roman world. Responses to risk and crisis*, Cambridge–New York–Melbourne 1993, *passim*, esp. 49–53; idem, *Food and society...*, p. 12–21; N. Jasny, *The daily bread of the ancient Greeks and Romans*, Osi 9, 1950, p. 227–253; J. Koder, *Gemüse in Byzanz. Die Versorgung Konstantinopels mit Frischgemüse im Lichte der Geoponika*, Wien 1993, p. 15–25; idem, *Everyday food...*, p. 142–145; M. Kokoszko, *Smaki Konstantynopola...*, p. 483–485; M. Kokoszko, K. Jagusiak, *Zboża Bizancjum...*, p. 34–37; J. McCorriston, *Wheat*, [in:] *The Cambridge World...*, p. 158–174; Φ. Κουκουλες, *op. cit.*, p. 15–31; M. Montanari, *Food is culture*, trans. A. Sonnenfeld, New York 2006, p. 6–7; K.D. White, *Cereals, bread and milling in the Roman world*, [in:] *Food in Antiquity...*, p. 38–43.

antine cuisine, thus suggesting its constant usage in boiled dishes rather than in the baking of bread.

As regards the specific dietetic properties of the product, in *De simplicium medicamentorum temperamentis ac facultatibus* Galen described rice as a foodstuff that has slightly styptic properties, and for this reason tends to slow down the action of the alimentary tract[55]. This brief description should be supplemented by another depiction of the product's values, this time given in *De alimentorum facultatibus*. In this work Galen maintained that rice is difficult to digest, of low nutritional value, and should be given only to persons whose ailments necessitate slowing down the functioning of the stomach and intestines. The physician also made a reference to the taste of the said food, observing that dishes made from it appeal neither to his palate, nor to the palates of other representatives of Graeco-Roman culture[56]. It should be added that the latter opinion will undergo modification over the course of development of dietetics.

A lecture of Oribasius' works, who wrote in the second half of the 4th cent. A.D., proves that he adopted the doctrine elaborated by Dioscurides and Galen. And thus, in the first book of *Collectiones medicae*, which contains detailed descriptions of cereal plants, he stated that rice has a low nutritional value, while, by a comparison with *chóndros*[57], he suggested that it is relatively difficult to initially digest, and for this reason was used by dieticians in cases requiring stoppage of the alimentary system[58]. Oribasius only refrained from giving an unequivocally negative assessment of the taste of the Far Eastern cereal, which opinion – as we have indicated above – was present in the doctrines of Galen. This may attest to the gradually changing approach of dieticians to dishes made from the plant, or at least to a greater acceptance of its taste. This consistent description of rice is not, however, the sole piece of information concerning the food which is present in the output of Emperor Julian's physician. In fact, Oribasius made a reference to the dietetic properties of rice when collectively describing individual groups of food products according to their distinguishing features. This cereal was mentioned[59] when the physician enumerated foods that do not give the body much sustenance[60], which he subsequently repeated *in extenso* in his *Synopsis ad Eustathi-*

[55] *Galeni de simplicium medicamentorum temperamentis et facultatibus libri*, 92, 5–6, [in:] *Claudii Galeni opera omnia*, ed. D.C.G. Kühn, vol. XI–XII, Lipsiae 1826–1827 (cetera: Galen, *De simplicium medicamentorum*).

[56] Galen, *De alimentorum facultatibus*, 525, 1–5.

[57] A comparison with *chóndros* was repeated in the twelfth book of his *Collectiones medicae*, cf. *Oribasii collectionum medicarum reliquiae*, XII, ξ, 15, 1–2, ed. I. Raeder, vol. I–IV, Lipsiae–Berolini 1928–1933 (cetera: Oribasius, *Collectiones medicae*).

[58] Oribasius, *Collectiones medicae*, I, 16, 1, 1–2.

[59] Oribasius, *Collectiones medicae*, III, 14, 7, 3.

[60] Oribasius, *Collectiones medicae*, III, 14, 1, 1 – 13, 3.

um filium[61] and *Libri ad Eunapium*[62]. Oribasius also remained loyal to the findings of Galen, including the product in his main work[63] in the chapter concerning foods that are difficult to digest[64]. Again, he repeated the information in *Synopsis ad Eustathium filium*[65] and *Libri ad Eunapium*[66]. Finally, Oribasius included rice[67] in the chapter on foods that slow down the alimentary tract[68], while an identical classification reappeared in *Synopsis ad Eustathium filium*[69] and *Libri ad Eunapium*[70].

A relatively considerable amount of information concerning the dietetic properties of rice may be found in sources originating from the 6th cent. A.D. Anthimus[71], who wrote in the twenties of this century, was of the opinion that the cereal is conducive to maintaining health, however provided that it is properly cooked. If insufficiently tender, it is harmful. The author of the treatise *De observatione ciborum* stressed that the food has a particularly positive action on persons suffering from dysentery, though he also additionally emphasised that in such a case it was necessary to take all imaginable care in order to ensure that patients receive the cereal only after it has undergone thorough thermal processing[72].

In any case, the supposition that rice became a somewhat more permanent element of 6th cent. cuisine and dietetics is supported by the fact that Aetius of Amida[73] also included deliberations concerning its qualities in his work. His treatise known as *Iatricorum libri* clearly shows that the findings of established authorities were strictly observed in his times, too. He was of the opinion that the food is delicately styptic, and thus only slightly slows down the action of the stomach[74], and is

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[61] *Oribasii synopsis ad Eustathium filium*, IV, 13, 6, 3, [in:] *Oribasii synopsis ad Eustathium filium et libri ad Eunapium*, ed. I. Raeder, vol. VI, 3, Leipzig 1964 (cetera: Oribasius, *Synopsis ad Eustathium filium*).

[62] *Oribasii libri ad Eunapium*, I, 30, 1, 1 – 8, 2, [in:] *Oribasii synopsis ad Eustathium filium et libri ad Eunapium*, ed. I. Raeder, vol. VI, 3, Leipzig 1964 (cetera: Oribasius, *Libri ad Eunapium*).

[63] Oribasius, *Collectiones medicae*, III, 18, 11, 2.

[64] Oribasius, *Collectiones medicae*, III, 18, 1, 1 – 13, 1.

[65] Oribasius, *Synopsis ad Eustathium filium*, IV, 17, 9, 2.

[66] Oribasius, *Libri ad Eunapium*, I, 35, 7, 6.

[67] Oribasius, *Collectiones medicae*, III, 30, 9, 1.

[68] Oribasius, *Collectiones medicae*, III, 30, 1, 1 – 9, 3.

[69] Oribasius, *Synopsis ad Eustathium filium*, IV, 30, 13, 1.

[70] Oribasius, *Libri ad Eunapium*, I, 46, 7, 1.

[71] A. Dalby, *Food...*, p. 12–13; M. Grant, *Introduction*, [in:] Anthimus, *On the observance of foods. De observatione ciborum*, ed. M. Grant, Totnes–Blackawton 2007 (cetera: Anthimus, *De observatione ciborum*), p. 9–44; M. Kokoszko, K. Jagusiak, *Woda, wino i tak dalej, czyli o napojach w Konstantynopolu*, PNH 9.1, 2010, p. 25; E. Kislinger, *Antimus*, [in:] *Antike Medizin...*, p. 56; G.M. Messing, *Remarks on Anthimus De observatione ciborum*, CP 37, 1942, p. 150–158.

[72] Anthimus, *De observatione ciborum*, 70.

[73] A. Garzya, *Aetios v. Amida*, [in:] *Antike medizin...*, p. 19–20; M. Kokoszko, *Ryby...*, p. 9.

[74] The author of *Iatricorum libri* repeats this description in the chapter of the second book that concerns foods which slow down the functioning of the alimentary tract, cf. *Aetii Amideni libri medicinales I–VIII*, II, 266, 19, ed. A. Olivieri, Lipsiae–Berolini 1935–1950 (cetera: Aetius of Amida, *Iatricorum libri*).

also difficult to digest[75]. No small wonder, therefore, that the same expert on ancient dietetics – in the very same way as Oribasius did – mentioned rice amongst foods that do not give the body much sustenance[76], are difficult to initially digest[77], and slow down the action of the intestines[78].

Obviously, the impact of Galen's dietetic findings is visible in the output of Alexander of Tralles (6th/7th cent.). Although the Byzantine physician did not devote a lot of space to a description of the properties of rice (his *Therapeutica* informs us only that it belonged to the *óspria*[79]), the cereal was frequently mentioned when the author touched upon issues connected with the preparation of medicines, and the data provided by him does not indicate a departure from previously established doctrines. He had to recognise the styptic and slowing action of rice if he used it in the treatment of ailments of the alimentary tract, and in particular dysentery.

In the 7th cent. A.D., Paul of Aegina[80] followed exactly the same path as his predecessors. Thus, he described rice in the chapter devoted to cereals[81], which is more concordant with the tradition of Dioscurides and Oribasius. He considered it difficult to initially digest, not very nutritious, and slowing down the functioning of the alimentary tract[82]. In another fragment of his *Epitome*, when yet again presenting the action of the said food on the digestive system, Paul made a successive reference to the set of views already known from our lecture, stating that rice has a slightly styptic action and therefore slows down the functioning of the intestines[83].

3. On the preparation of rice, or a few words on the place of this cereal in ancient and early Byzantine *res coquinaria*.

Recreating the methods of serving rice in the times constituting the subject of the present paper leads to significant difficulties. First and foremost, the available data is usually imprecise and does not resemble that made readily available at any moment and printed in modern cookbooks. As we have

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[75] Aetius of Amida, *Iatricorum libri*, I, 305, 1–2.

[76] Aetius of Amida, *Iatricorum libri*, II, 251, 8.

[77] Aetius of Amida, *Iatricorum libri*, II, 255, 19.

[78] Aetius of Amida, *Iatricorum libri*, II, 266, 19.

[79] *Alexandri Tralliani therapeutica*, II, 251, 11, [in:] Alexander von Tralles, ed. T. Puschmann, vol. I–II, Amsterdam 1963 (cetera: Alexander of Tralles, *Therapeutica*).

[80] As regards basic information on this physician, cf. M. Kokoszko, *Ryby...*, p. 15–16; P. Pormann, *Paulos v. Aegina*, [in:] *Antike Medizin...*, p. 681–682.

[81] *Paulus Aegineta*, I, 78, 1, 1–25, ed. I.L. Heiberg, vol. I–II, Lipsiae–Berolini 1921–1924 (cetera: Paul of Aegina, *Epitome*).

[82] Paul of Aegina, *Epitome*, I, 78, 1, 20.

[83] Paul of Aegina, *Epitome*, VII, 3, 15, 54.

already determined, rice reached the Mediterranean Basin from India, where – in accordance with Strabo's relation – it was the staple foodstuff. We may also assume that the initial culinary tradition, imported from regions where the cereal originated, impacted the development of methods of preparing rice in the eastern part of the Mediterranean Basin. Data contained in literary sources would indicate that the inhabitants of India used rice to prepare a thick, but at the same time semi-liquid dish[84], and it is also worth keeping in mind that they drank a beverage made from rice seeds. Since Strabo added that rice was used to produce the aforementioned drink instead of barley (*kríthai*)[85], one should assume that the alcoholic beverage that the author had in mind was in a way analogous to beer, the usual basis of which (most frequently, but not exclusively) was the latter cereal crop. The beverage was usually enjoyed by nations foreign to the Greeks, while for the Hellenes it was an indicator of an alien, and usually lower culture[86].

Strabo's work does not indicate the method used by inhabitants of India to prepare dishes that included rice. The term *oryza rofete*, which he applied, suggests that they made a kind of soup with rice as its main ingredient, in all probability thick, so that it would be sufficiently nutritious. We do not learn, however, whether the cereal was boiled solely in water, or whether stocks of a certain type (for example a meat broth) were used for this purpose, nor is there any information as to the additives – including spices – that were mixed with the dish. However, *Deipnosophists* of Athenaeus of Naucratis, to which there was attached an excerpt from Megasthenes' work *Indika*, inform us that in India and, as we should probably surmise, during ceremonial meals, this cereal crop was served in silver bowls as the main course during the primary meal of the day, which the author called *deípnon* in Greek. The dish was prepared in a way that reminded the author of the method usually used by the Greeks to cook the *chóndros*[87]. As a matter of fact, this comparison is so frequent in other sources that it appears to be the best hint for historians of food interested in recreating the correct recipe for the original method of preparing rice.

Our data indicates that there was no single recipe for *chóndros*. Oribasius, for example, stated that the product was simply boiled in water. During this activity the dish, which we will call a soup, had to be frequently mixed, and olive oil and a pinch of salt added. The author also mentioned that some wine with honey, i.e. *oinómeli*, or a different alcoholic beverage of this type, either sweet or dry, was mixed with the dish. Another variant of the same delicacy

[84] Strabo, *Geographica*, XV, 1, 53, 12–13.

[85] Strabo, *Geographica*, XV, 1, 53, 11–12.

[86] Concerning beer, cf. M. Kokoszko, *Smaki...*, p. 569–572; M. Kokoszko, K. Jagusiak, *Woda, wino...*, p. 48–52; M.J. Szymański, *Browary Łodzi i regionu*, Łódź 2011, p. 8–11.

[87] Athenaeus of Naucratis, *Deipnosophistae*, IV, 153d–e (39, 1–7, Kaibel).

was obtained by spicing the soup with wine vinegar. The dish obtained in this way was known as *chóndros ptisanísti*, that is *chóndros* prepared à la *ptisáne*[88], i.e. in the same way as (or, rather, similarly to) the medicinal soup or gruel based on barley.

In turn, as regards the other trail, namely the *ptisáne* soup, which was famous amongst dieticians and to which we must make a reference in connection with out deliberations, a relatively legible and sufficiently detailed recipe for its preparation has been left by Oribasius, who actually cited it after Galen[89]. *Ptisáne* was made from soaked barley, the seeds of which were recommended to be well cleaned of husks even before they were boiled. Next, the dish should be kept over a small fire, so that the cereal would swell as far as possible. During this activity, wine vinegar and olive oil were added to the soup. When the grains were nearly soft, fine salt, leeks and fennel were added. Sometimes, sweet must and honey were poured into the dish, although these ingredients were not recommended by Oribasius[90]. The resulting soup moistened[91] and purified the body[92].

It should be added that relatively precise recipes for *ptisáne* have also survived in the treatise *De re coquinaria*[93], in which the said dish appears under the name *tisana*. In order to illustrate gastronomic methods, it is worth quoting the first of the recipes, namely the one for *tisana vel sucus*. It says that one day before cooking the soup, the cook would soak pearl barley, which was then washed and ground, and placed over a strong fire in a pot. When it was soft, he would add olive oil, a bunch of dill, dried onions, summer savory and pigs' trotters. Next, the mixture was boiled until the meat became soft, and coriander ground with salt was added. The dish was boiled yet again, and the dill and pearl barley – insofar as possible – removed. The barley was then placed in another pot and reground while keeping the vessel over a fire and making sure not to burn the pearl barley. The mass was then transferred to the pot containing the pork and broth, and the cook would add ground lovage, dried field mint, cumin, asafoetida, a small quantity of wine vinegar, boiled must and *garum/liquamen*. Finally, the mixture was boiled yet again and served.

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[88] Oribasius, *Collectiones medicae*, I, 5, 1, 1 – 2, 2. Cf. M. Kokoszko, *Smaki...*, p. 480; Φ. Κουκουλες, *op. cit.*, p. 26.

[89] Galen, *De alimentorum facultatibus*, 502, 7 – 504, 4. Concerning the deliberations of dieticians concerning *ptisáne*, cf. E. Darmstaedter, *Ptisana: ein Beitrag zur Kenntnis der antiken Diaetetik*, Ar.ASS 15, 1933, p. 181–201; M. Kokoszko, *Smaki...*, p. 477–480.

[90] Oribasius, *Collectiones medicae*, IV, 1, 15, 1 – 22, 1.

[91] Aetius of Amida, *Iatricorum libri*, I, 225, 11–12.

[92] Aetius of Amida, *Iatricorum libri*, II, 260, 1. Cf. *Geoponica sive Cassiani Bassi Scholastici de re rustica eclogue*, II, 34, rec. H. Beckh, Lipsiae 1895 (cetera: *Geoponica*).

[93] *Apicius. A critical edition with an introduction and an English translation of the Latin recipe text Apicius*, IV, 4, 1–2; V, 5, 1–2, ed. Ch. Grocock, S. Grainger, Blackawton–Totnes 2006 (cetera: *De re coquinaria*).

Returning to rice, however, we should add that Dioscurides himself considered it an ingredient of *póltos*[94], namely, as is indicated by dictionary definitions[95] and an expert opinion passed by connoisseurs of ancient culinary art[96], yet another type of soup or thick cereal gruel boiled in water, but also in milk[97]. A general recipe for this dish[98] may be found, for example, in the writings of Aetius of Amida, who maintained that it is prepared with water and spiced with salt, olive oil and *ánethon*, i.e. dill. Instead of using olive oil, one may add to the *póltos* fresh hen or goose fat[99]. All in all, the recipe cited above clearly resembles the instructions – cited above – for preparing *chóndros*. Such a dish must have been relatively popular, because recipes for a similar delicacy have survived in *stricte* culinary literature, or – to be precise – in *De re coquinaria*, which *nota bene* contains four recipes for *póltos*-type dishes (under the name *puls*[100]). We should, however, reiterate the reservation that these recipes are no more than similar to the one for the *póltos* mentioned by Dioscurides, for they do not include rice itself, but spelt groats, known as *álix*[101]. Therefore, by way of an example and in order to visualise potential culinary formula variants, it is worth quoting one of the recipes[102]. Its author recommends that sifted *álix* groats be soaked and left to boil in water. When the groats were nearly soft, one should add olive oil, and pound the mass carefully once it thickens. Two boiled brains and a small quantity of chopped up meat were prepared separately and carefully pounded in a mortar with finely ground pepper, lovage and fennel seeds. A fish sauce and wine were added, and the mass was placed over a fire. Once the brains and meat were ready, they were slowly combine with the groats, so that the dish resembled a soup (or gruel), in all probability very thick.

Returning to medical sources, however, we should note that rice was boiled not only in water, but also in a certain type of meat stock. For example, Aetius of Amida wrote about rice prepared in a poultry broth[103]. Unfortunately, he did not precise whether it was then served as a soup, i.e. together with the stock in which it was boiled, or whether the rice was strained and consumed on its own.

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[94] *Dioscuridis Περὶ ἁπλῶν φαρμάκων*, II, 51, 3, 4, [in:] *Pedanii Dioscuridis Anazarbei de materia medica libri quinque*, ed. M. Wellmann, vol. III, Berolini 1914 (cetera: Dioscurides, *Euporsista vel de simplicibus medicinis*).

[95] Liddell-Scott, p. 1436, s.v. πόλτος.

[96] Cf. description of the term *puls* – A. Dalby, *Food...*, p. 271. This dish was very popular in Greek and Roman culture. It was also found in the British Isles under Roman rule, cf. H.E.M. Cool, *Eating and drinking in Roman Britain*, Cambridge 2006, p. 75.

[97] *Hesychii Alexandrini lexicon*, G, 80, 2, post I. Albertum rec. M. Schmidt, vol. I–V, Ienae 1859–1868 (s.v. Γαλάχια). Other examples below.

[98] Aetius of Amida, *Iatricorum libri*, IX, 42, 62.

[99] Aetius of Amida, *Iatricorum libri*, IX, 42, 62–66.

[100] *De re coquinaria*, V, 1, 1–4.

[101] Spelt groats, but also emmer groats. Cf. A. Dalby, *Food...*, p. 127.

[102] *De re coquinaria*, V, 1, 1.

[103] Aetius of Amida, *Iatricorum libri*, VII, 32–33.

However, in light of the above-mentioned, highly cohesive tradition we think that the first option would be much likelier. Although there are insufficient details concerning the stock itself, we may visualise the technology according to which it was made on the basis of treatises written by ancient and Byzantine physicians, especially if these are supplemented with culinary information *sensu stricto*. First of all, a stock similar to the broth mentioned by the famous 6th cent. physician would be the so-called white stock, *leukós zomós*. The authors of medical sources maintained that it was prepared using good quality potable water[104]. A small quantity of the best olive oil was added, as was dill and some leeks. The washed meat was placed in water and boiled. When it was semi-soft, salt was added. We should note that the recipe for white stock is present in the majority of medical works. For example, it was known by Dioscurides[105], Galen[106], Oribasius[107] and Aetius of Amida, while their recipes did not practically differ. Secondly, *De re coquinaria* contains a few recipes very similar to those for the abovementioned broth. For example, a similar method of boiling meat is mentioned in one[108] of the recipes for preparing duck[109], according to which the meat was cooked in water with salt and dill. The treatise *De re coquinaria* also contains a short recipe for boiled bacon, which recommends processing the meat in water with a large quantity of dill, a few drops of olive oil, and salt[110], therefore in a manner resembling *leukós zomós*.

However, medical sources inform us not only of the abovementioned rice *póltos*. Considerably more frequently, they refer to the *chylós orýzes*. Unfortunately, no definition of the term is given. We may guess that this was a thin rice stock, obtained by boiling the cereal. For example, the term *chylós* is touched upon by Galen when considering the medical and culinary applications of *chóndros*. The text indicates that he was writing about a stock made from this product, which was

[104] In antiquity, access to fresh water was a significant problem. Cf. A. Dalby, *Food...*, p. 346–347; G. Clark, *Water in Antiquity*, An 18, 1944, p. 1–15; J.A. López Férez, *Aspectos teoréticos, empiricos y léxicos del agua en Galeno*, [in:] *Galen und das hellenistische Erbe. Verhandlungen des IV. Internationalen Galen–Symposiums veranstaltet vom Institut für Geschichte der Medizin am Bereich Medizin (Charité) der Humboldt–Universität zu Berlin 18.–20. September 1989*, ed. J. Kollesch, D. Nickel, Stuttgart 1993, p. 171–193. Cf. M. Kokoszko, *Smaki Konstantynopola...*, p. 557–560. Recently, a work has been published summarising research into the provision of water to Constantinople, cf. J. Crow, J. Bardill, R. Bayliss, *The water supply of Byzantine Constantinople*, London 2008. A noteworthy contribution to research into this problem was also made by Teresa Wolińska (*Zaopatrzenie Konstantynopola w wodę we wczesnym średniowieczu (IV–VII w.)*, [in:] *Człowiek w średniowieczu. Między biologią a historią*, ed. A. Szymczakowa, Łódź 2009, p. 27–52; eadem, *Zaopatrzenie w wodę*, [in:] *Konstantynopol – Nowy Rzym...*, p. 433–462).

[105] Dioscurides, *De materia medica*, II, 33, 1, 1–5.

[106] Galen, *De alimentorum facultatibus*, 725, 6–13.

[107] Oribasius, *Collectiones medicae*, II, 51, 6, 1 – 7, 3.

[108] *De re coquinaria*, VI, 2, 1.

[109] *De re coquinaria*, VI, 2, 1–6.

[110] *De re coquinaria*, VII, 9, 4.

diluted with a large quantity of water, boiled for a length of time in a vessel placed over a charcoal fire (in order to ensure a stable and not excessively high temperature for the entire period of boiling) and mixed throughout the process, spiced only with a small quantity of salt and olive oil[111]. However, the text also suggests that sometimes the broth contained overcooked grains, which were pulverised so that the whole resembled an emulsion. This liquid – or thin soup – would be drunk in order to alleviate problems of the alimentary tract[112]. A further analogy would be information concerning *chylós ptisánes*, which we may find in Oribasius' writings, and which he himself took from the output of Antyllus[113]. The said *chylós* was obtained by diluting *ptisáne* with water (one measure of *ptisáne* per fifteen measures of water), and reducing the solution thus received to one fifth. Before drinking, the liquid was strained[114]. We may also surmise that this *chylós* could be also described using different other terms, for example *afépsema*, as Paul of Aegina preferred[115].

Medical data indicates that rice was also boiled in milk. It is worth noting that the latter was the subject of widespread interest amongst ancient and early Byzantine dieticians, while Byzantine medical treatises based their assessments on Galen's findings, expounded in *De alimentorum facultatibus*[116]. It is not surprising that Oribasius[117], Aetius of Amida[118], Anthimus[119] and Paul of Aegina[120] all quoted the doctrines of their master. And although Alexander of Tralles[121] did not cite him word for word, he also remained amongst the followers of the great doctor from Pergamum. The authors of medical treatises considered milk as having a favourable impact on the organs situated in the chest[122]. However, when consumed too frequently, it caused headaches and contributed to the generation of gases, negatively impacted the liver and facilitated the formation of stones in the urinary system[123]. In order to lessen its negative action, they recommended adding starch, *ámylon*, flour *semídalis*, and also rice, etc.[124]

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[111] Galen, *De alimentorum facultatibus*, 497, 5–12.
[112] Galen, *De alimentorum facultatibus*, 497, 14 – 498, 3.
[113] Oribasius, *Collectiones medicae*, IV, 11, 1, 1 – 14, 4.
[114] Oribasius, *Collectiones medicae*, IV, 11, 4, 1–4.
[115] Paul of Aegina, *Epitome*, V, 61, 1, 5. The physician also used the term χυλός (*chylós*); cf. Paul of Aegina, *Epitome*, II, 57, 1, 25.
[116] Galen, *De alimentorum facultatibus*, 681, 11 – 689, 7.
[117] Oribasius, *Collectiones medicae*, II, 59, 1, 1 – 14, 5.
[118] Aetius of Amida, *Iatricorum libri*, II, 87, 1 – 91, 3.
[119] Anthimus, *De observatione ciborum*, 75–76.
[120] Paul of Aegina, *Epitome*, I, 86, 1, 1–10.
[121] Alexander of Tralles, *Therapeutica*, I, 539, 16 – 545, 18. Regarding this physician, cf. Z. Gajda, *op. cit.*, p. 179; A. Garzya, *Alexander v. Tralles*, [in:] *Antike Medizin...*, p. 27–28.
[122] This property was emphasised by Anthimus (*De observatione ciborum*, 76).
[123] Paul of Aegina, *Epitome*, I, 86, 1, 3–5.
[124] Anthimus, *De observatione ciborum*, 76; Paul of Aegina, *Epitome*, I, 88, 1, 6–8.

Recipes referring to the boiling of rice in milk are rather imprecise. Usually, physicians gave the cereal only marginal treatment in their deliberations devoted to improving the properties of milk. It is interesting to note that Aetius of Amida called the soup obtained by boiling rice in milk *póltos*[125], however his writings do not contain a recipe for the dish. Medical deliberations concerning methods of boiling milk itself may shed some light on the technology applied by cooks. Since it had a tendency to burn and stick to the porous walls of clay vessels when boiled over an open fire, and also boiled over, by far the most common practice was to throw hot stones or red-hot metal disks into the vessel containing the milk[126]. The most detailed recommendations concerning the boiling of rice in milk have been given by Anthimus. In accordance with his instructions, rice should be boiled in water until soft, then strained, immersed in goat's milk and boiled until the whole mass thickens[127].

It is worth noting that dishes made from rice were sometimes sweetened. This conclusion may be drawn from numerous references in medical sources, that authors of which recommend adding sweet wine (or must) and honey to the product. A good example of such recommendations are the deliberations of Anthimus[128]. Aetius of Amida informs us that there was a method of boiling the cereal in – or with the addition of – water with honey, namely *melíkraton*[129]. Butter was also added to rice dishes[130]. In accordance with information provided by Galen, the cereal – boiled with the addition of this fat – was administered to persons suffering from diarrhoea and a general debilitation connected with a reluctance to take food[131].

As we learn from one of the ancient commentaries concerning Aristophanes' comedy *The Knights,* rice could have been one of the ingredients of a dish known as *thríon*[132]. The commentary maintains that the delicacy was prepared by boiling the appropriate quantities of wheat groats, rice or the best quality wheat flour in a pot. Next, the water was poured out and the mass mixed with soft cheese and a few eggs. When ready, it was wrapped in fig leaves and tied with jute – a plant with strong fibres – papyrus or flax, and boiled in a meat stock. After taking the ready *thría* out of the pot, the leaves were removed, while the rest was fried in

[125] Aetius of Amida, *Iatricorum libri*, IX, 20, 50–57.
[126] Anthimus, *De observatione ciborum*, 75; Paul of Aegina, *Epitome*, I, 88, 1, 6–8.
[127] Anthimus, *De observatione ciborum*, 70. Cf. a modern recipe for the same dish, developed by Mark Grant (*Roman cookery. Ancient recipes for modern kitchens*, London 2002, p. 154).
[128] Anthimus, *De observatione ciborum*, 76.
[129] Aetius of Amida, *Iatricorum libri*, VIII, 31, 18. The mention of μελίκρατον (*melíkraton*) does not, however, connect this practice with the preparation of rice in milk.
[130] *Galeni de compositione medicamentorum secundum locos libri*, 170, 5–6, [in:] *Claudii Galeni opera omnia*, ed. D.C.G. Kühn, vol. XII–XIII, Lipsiae 1826–1827 (cetera: Galen, *De compositione medicamentorum*).
[131] Galen, *De compositione medicamentorum*, 169, 7–9.
[132] A. Dalby, *On thria*, PPC 31, 1989, p. 56–57.

a pan in fresh honey until it turned brown. The dish was served with addition of fresh honey, or the honey in which it had been prepared. The name of the delicacy stems from the Greek word denoting fig leaves[133], and the popularity of such dishes is attested to not only throughout antiquity, but also in Byzantium[134]. Traces of the recipe may be found in modern Greek cuisine, which is rich with numerous variations of the delicacy known as *dolmadákia*[135]. These are grape leaves stuffed with a filling made from rice and spices, which are stewed in water and olive oil[136].

Although, as we have already mentioned, Galen classified rice amongst the so-called *óspria,* that is products which are not suitable for making bread[137], we do know that rice was in fact used in baking. For example, Athenaeus of Naucratis mentioned a type of bread known as *oríndes ártos*. It was also mentioned by Sophocles in his *Triptolemus*, while the author of *Deipnosophists* wrote that it was made from rice[138] (or from some other type of cereal growing in Africa, which resembled sesame[139]). The same author also cited fragments of the work *On baking*[140] by Chrysippus of Tyana, a specialist in the baking of cakes, known as *pemmatológos*[141], who enumerated therein a great many different types of cakes (the so-called *plakoúntes*) amongst which there figures the rice cake, *plakoús oryzítes*[142].

Finally, we should note that rice was also used to thicken sauces. Proof of this are two recipes, surviving in the *De re coquinaria*[143], for a starch sauce (*amulatum*), which list rice as an ingredient, while the water in which the cereal was boiled was said to give the sauce the appropriate consistency. In accordance with the first recipe[144], it was necessary to combine a thick pepper sauce (made from pepper that had been ground and soaked in water a day earlier) and fish sauce (*liquamen*),

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[133] *Scholia in Aristophanis equites vetera et recentiora Triclinii*, 954b, 1–10, [in:] *Scholia in Aristophanem. Scholia in equites scholia vetera et recentiora Triclinii*, ed. D.M. Jones, N.G. Wilson, Groningen 1969. Cf. a modernised version of this delicacy, the recipe for which has been developed by Mark Grant, mentioned above (*Roman cookery...*, p. 94).

[134] A.N.J. Louvaris, *Fast and abstinence in Byzantium*, [in:] *Feast, fast or famine. Food and drink in Byzantium*, ed. W. Mayer, S. Trzcionka, Brisbane 2005, p. 189–196.

[135] I. Anagnostakis, *Eating flowers*, [in:] *Flavours and delights...*, p. 72.

[136] *Culinaria Greece. Greek specialtes*, ed. M. Milona, Cambridge 2008, p. 91, 278–279.

[137] Galen, *De alimentorum facultatibus*, 524, 11–16.

[138] Athenaeus of Naucratis, *Deipnosophistae*, III, 110e (75, 32, Kaibel).

[139] Athenaeus of Naucratis, *Deipnosophistae*, III, 110e (75, 32–34, Kaibel).

[140] Athenaeus of Naucratis, *Deipnosophistae*, XIV, 647c (57, 1–3, Kaibel).

[141] Athenaeus of Naucratis, *Deipnosophistae*, XIV, 648a (57, 50, Kaibel).

[142] Athenaeus of Naucratis, *Deipnosophistae*, XIV, 647d (57, 16, Kaibel).

[143] *De re coquinaria*, II, 2, 8–9. Concerning Apician sauces, cf. J. Solomon, *The Apician sauce. Ius Apicianum*, [in:] *Food in Antiquity...*, p. 115–131, in particular 125 (where the author discusses the role of rice as a thickener for dishes). Also cf. J.P. Alcock, *Food in the ancient world*, Westport–London 2006, p. 34; P. Faas, *Around the Roman table. Food and feasting in ancient Rome*, New York 2003, p. 181.

[144] *De re coquinaria*, II, 2, 8.

together with a syrup obtained from common quince, fig must and starch diluted with water or a rice stock (*oryzae sucus*). The second type of sauce[145] was prepared on the basis of a stock made from chicken bones, to which there were added leeks, dill and salt. Once these ingredients were boiled, the cook would add pepper, celery seeds, ground and previously soaked rice, fish sauce and raisin wine or reduced must (*defrutum*). The sauce was to be served with meatballs[146].

Having led our analysis to an end, it is time for a summary. The abovementioned information indicates that rice, although one of the least popular cereals in terms of cultivation acreage and the number of applications in the daily life of the Mediterranean, was nevertheless, treated with attention by contemporary physicians interested in dietetics, from Dioscurides up to Paul of Aegina. As a foodstuff, however, it was no highly appreciated. The approach to rice as a food underwent a positive evolution over the centuries. Over time, the cereal was introduced to lands further afield, which the new conditions that came into being after the Arab conquests (the so-called Arab agricultural revolution) particularly facilitated, although – and this is important to note – as early as the 6th cent. mentions of rice in Greek sources increased in number. It may be that medicine's relatively widespread interest in this cereal crop should be interpreted as a symptom of the increasing popularity of rice in lands belonging to Byzantium more than one hundred years before the spectacular victories of the Arabs. Nevertheless, we should keep in mind that in the *Imperium Romanum/Byzantinum* during the period covered by our research rice failed to attain a position similar to that of wheat and barley, which were much more common in the region, and existed only as a more or less marginal product in the daily diet of the majority of consumers. The situation did not change at least until the beginning of the modern era.

Abstract. The present study discusses dietetic qualities of rice and culinary recipes pertaining to its preparation as demonstrated in ancient and Byzantine medical treatises compiled between 1st and 7th cent. A.D. (Dioscurides, Galen, Oribasius, Anthimus, Alexander of Tralles, Aetius of Amida and Paul of Aegina). The evidence (in the part touching on gastronomic applications of rice) also includes *De re coquinaria* attributed to Apicius.

The article consists of three parts. The first analyzes sources and modern literature to assess the impact of rice on the Greco-Roman and Byzantine agriculture. The results of the analysis confirm the scholarly opinion that rice was never popular in the Mediterranean in the ancient and early Byzantine periods. A slow and gradual change in its status appeared along with the Arab agricultural revolution.

The second chapter of the study is devoted to dietetic characterizations of rice and presents features attributed to the cereal over the ages. The authors come to the conclusion that the most frequent

[145] *De re coquinaria*, II, 2, 9.

[146] For some interesting information on the role of rice in ancient culinary art, cf. N. Marinone, *op. cit.*, p. 15–24.

characteristics of the crop which appear in the analyzed sources are its indigestibility, unwholesomeness, astringency (styptic action) as well as the ability to slow down the work of the alimentary tract. The final part of the article tries to retrieve from medical and culinary writings main culinary guidelines according to which rice was prepared as food. The authors conclude that, as a rule, the cereal was not used for bread baking, though it is likely that it was utilized in making cakes. Rice usually was the basis for preparation thick, gruel-like dishes which were normally compared to *chóndros* or *póltos*, less thick soups which were said to be similar to *ptisáne*, and watery, thin concoctions called *chyloi*, created by diluting rice stock.

Maciej Kokoszko
Katedra Historii Bizancjum
Wydział Filozoficzno-Historyczny
Uniwersytet Łódzki
ul. A. Kamińskiego 27a
90–219 Łódź, Polska
mkokoszko@komandor.pl

Krzysztof Jagusiak
Katedra Historii Bizancjum
Wydział Filozoficzno-Historyczny
Uniwersytet Łódzki
ul. A. Kamińskiego 27a
90–219 Łódź, Polska
krzysztof_jagusiak@o2.pl

Zofia Rzeźnicka
Katedra Historii Bizancjum
Wydział Filozoficzno-Historyczny
Uniwersytet Łódzki
ul. A. Kamińskiego 27a
90–219 Łódź, Polska
zosia_pwp.historyk@wp.pl