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# BARLEY FLOUR (*ÁLEURON KRÍTHINON*) IN ANCIENT AND EARLY BYZANTINE MEDICINE (I – VII C. AD)

ABSTRACT. Jagusiak Krzysztof, Kokoszko Maciej, Barley flour (áleuron kríthinon) in ancient and early Byzantine medicine (I - VII c. AD) (Mąka jęczmienna [áleuron kríthinon] w medycynie antycznej i wczesnobizantyńskiej [I - VII w. n.e.]).

The following article attempts to address two issues. The first one concerns dietetic characteristic of barley flour, which was a very popular product used both in Graeco-Roman and Byzantine culinary art and medicine. The second one deals with the therapeutic role of this product: different forms of remedies made from it, its effects on the human body, and various health problems cured by an application of medicines containing *aleuron krithinon*. To address these questions we study ancient and Byzantine Greek medical sources written between the 1<sup>st</sup> and 7<sup>th</sup> century AD by Dioscurides, Galen, Oribasius, Aetius of Amida, Alexander of Tralles, Paul of Aegina, and the anonymous author of the treatise entitled *De cibis*.

Keywords: ancient medicine; Byzantine medicine; common barley.

The aim of the present article is to describe the role of barley flour in ancient and early Byzantine medicine (between the 1<sup>st</sup> and 7<sup>th</sup> century AD). After a short introduction concerning natural history and general importance of barley, we will discuss dietetic qualities of barley flour and its medical use in the period. Our study is based on Greek medical treatises written by – in chronological order – Dioscurides (the 1<sup>st</sup>-century author of treatises entitled *De materia medica*, and *Euporista vel de simplicibus medicinis*), Galen (the 2<sup>nd</sup>/3<sup>rd</sup> century AD, who composed four works used in our research: *De alimentorum facultatibus*, *De victu attenuante*, *De simplicium medicamentorum temperamentis ac facultatibus*, and *De compositione medicamentorum secundum locos*), Oribasius (the 4<sup>th</sup> century AD, the author of at least four treatises, including *Collectiones medicae*, *Eclogae medicamentorum* and *Synopsis ad Eustathium filium*), Aetius of Amida (the 6<sup>th</sup> century AD, with the treatise entitled *Iatricorum libri*), Alexander of Tralles (the 6<sup>th</sup> century AD, who wrote two works used in our research: *Therapeutica*, and *De febribus*), Paul of Aegina (the 7<sup>th</sup> century AD, with his treatise entitled *Epitome*), and an anonymous author of the 7<sup>th</sup>-century short work known as *De cibis*.

Common barley (*Hordeum vulgare* L., in ancient Greek *krithé* [ $\kappa \rho t \theta \dot{\eta}$ ], in Latin *hordeum*) was one of the most important cereals of antiquity. It was well known, cultivated and domesticated in the so-called Old World, in the western part of Asia called the Fertile Crescent, no later than in 9000 BC. Along with the spread of agriculture, the area on which it grew increased in size in all directions. In the present article we focus on the western expansion. In Anatolian Peninsula barley appeared at the turn of the 8<sup>th</sup> and 7<sup>th</sup> millennium BC, and in Europe traces of its cultivation are dated to the turn of the 6<sup>th</sup> and 5<sup>th</sup> millennium BC, while the evidence of its presence in wild forms can be dated back to the turn of the 12<sup>th</sup> and the 11<sup>th</sup> millennium BC. During the subsequent centuries barley expanded into considerable areas of Europe.<sup>1</sup>

For the inhabitants of lands later known as Greece and Italy barley constituted a very important element of everyday diet since the Neolithic Age. It remained unchanged in the next centuries, also between the 1<sup>st</sup> and 7<sup>th</sup> century AD.<sup>2</sup> Although in Late Antiquity and early Byzantine times products made from barley became less popular than foodstuffs from wheat (*Triticum aestivum* L.), especially among social elites and people living in cities, they remained staple food for considerable part of the population of the Greek, Roman, and Byzantine world. They were particularly popular among the poor or underprivileged social groups, like peasants and slaves, and among the inhabitants of some geographical regions, for example, Gaul, Britain, or Egypt. Barley was also a specific element of military diet.<sup>3</sup> Described cereal was not only a staple food of the people, it was also used as a fodder for livestock, and for animals used by the army.<sup>4</sup>

Although the aim of our article is not strictly connected with analysing what products made from barley were eaten in the period we are interested in, nor do we intend to discuss various aspects of their popularity, or details of their production, we are going to list important foodstuffs made from barley in ancient

<sup>&</sup>lt;sup>1</sup>The literature on natural history of barley is abundant. Here we give only some examples of it, focused on Europe and Mediterranean Area. Cf. Zohary/Hopf 1993: 62–64; Badr/Müller/Schäfer-Pregl/El Rabey/Effgen/ Ibrahim/Pozzi/Rohde/Salamini 2000: 499–510; Mazoyer/Roudart 2006: 78–79; Brown/Jones/Powell/Allaby 2009: 103–109; White/Makarewicz 2012: 85–94; Willcox 2012: 168; Mascher/Schuenemann/Davidovich/Marom/Himmelbach/Hübner/Korol/ David/Reiter/Riehl/Schreiber/Vohr/Green/Dawson/Russell/Kilian/Muehlbauer/Waugh/Fahima/ Krause/Weiss/Stein 2016: 1089–1093.

<sup>&</sup>lt;sup>2</sup>Cf. Jasny 1942: 756–758; Dalby 1996: 39, 43–46; Garnsey 2002: 18; Thurmond 2006: 17–18; Dalby 2013: 19; Kokoszko/Jagusiak/Rzeźnicka 2014: 313–320.

<sup>&</sup>lt;sup>3</sup>Cf. Bober 1999: 206; Alcock 2001: 29–30; Dalby 2003: 17–22; 30–31; Haldon 2005: 88, 90; Cool 2006: 71, 77–78; 141–143; Stock/O'Neill/Ruff/Zabecki/Shackelford/Rose 2011: 348; Kokoszko/Jagusiak/Rzeźnicka 2014: 314–326.

<sup>&</sup>lt;sup>4</sup> Jasny 1942: 755; Alcock 2001: 18; Kokoszko/Jagusiak/Rzeźnicka 2014: 320–322.

Greece, Rome and in Byzantine Empire. Sources inform us about products from barley, such as groats, breads, soups, drinks, and more complex dishes with some barley-based ingredients.<sup>5</sup>

One of the most important products made in this period from barley was flour (in Greek *áleuron* [ $\check{\alpha}\lambda\epsilon\nu\rho\sigma\nu$ ]). This article does not focus on its culinary role,<sup>6</sup> but on its dietetic characteristic and its healing use described by the Greekspeaking medical authors mentioned in the first paragraph of this work.

As for dietetic characteristic of barley flour, we can find a lot of information in abovementioned sources. We started our research with an analysis of Dioscurides' legacy. His depiction of barley flour in *De materia medica* does not really exist as an independent part of this work. It ought to be reconstructed, in some measure, as a derivative of the qualities of barley itself. Other properties of *áleuron kríthinon* (*ă*λευρον κρίθινον) do appear thanks to its use as an ingredient of medications. For example, we discovered that when boiled with figs in *melíkraton* (μελίκρατον, a mixture of water and honey) it is diaphoretic,<sup>7</sup> and it hastens digestion of juices dangerous to health when prepared with tar, resin, and pigeon excrements.<sup>8</sup>

More information can be found in Galen's works. According to Galen's doctrines, barley flour has some qualities derived from those of barley itself. As stated in treatises like *De alimentorum facultatibus* and *De victu attenuante*, *áleuron kríthinon* was considered to be less nourishing than the same type of flour obtained from bread wheat, because barley was much less nutritious than wheat (as barley products, like bread, did not contain the viscosity that determined the nutritive value of all cereal foodstuffs).<sup>9</sup> When it comes to other qualities of barley flour, Galen described it as being made of fine and white grains, free of any impurities. He explained that because of that it is more quickly and easily digested, and subsequently absorbed. Lastly, it nourishes the body more effectively, before becoming a part of it.<sup>10</sup> The author of *De alimentorum facultatibus* presented the ways in which the elements (called *pítyra*, πίτυρα) that

<sup>&</sup>lt;sup>5</sup>Information on culinary products made from barley is available in many Greek, Roman, and Byzantine works. These sources have – among others – medical, agricultural, encyclopaedical, historiographical, religious, and geographical character. This, in itself, shows, how abundant is ancient and Byzantine legacy of barley role in cuisine. There is no space, in our opinion, in this article, to cite well-known passages of Varro, Columella, Palladius, Galen, Dioscurides, Tacitus, Procopius of Caesarea, Athenaeus of Naucratis, and others. Cf. Kokoszko/Jagusiak/Rzeźnicka 2014: 311–398 (where many references to sources can be found).

<sup>&</sup>lt;sup>6</sup>Barley flour was used first of all in preparation of bread, but it could be also, for example, cooked with milk, cf. Gal. *Alim.Fac.* 504, 6–7; 506, 4–6, vol. VI; Gal. *Vict.At.* 37, 3.

<sup>&</sup>lt;sup>7</sup>Dsc. *Mat.Medic.* II, 86, 2, 2–3.

<sup>&</sup>lt;sup>8</sup>Dsc. *Mat.Medic.* II, 86, 2, 3–4.

<sup>&</sup>lt;sup>9</sup>Gal. *Alim.Fac.* 507, 9–14, vol. VI. This element of barley characteristic was emphasized in his description of barley grout called *álphita*.

<sup>&</sup>lt;sup>10</sup>Gal. Alim.Fac. 508, 3–10, vol. VI.

contaminated flour worked. According to him, they are tough and insoluble in water. Because of that they do not decompose in the stomach, and remain there without being broken down. They do not ripen in the stomach, and as a result are not absorbed, since they are unable to enter the veins through which food is being distributed. For this reason they constitute a considerable part of the faeces and are quickly evacuated, due to their weight. Because of this, they were thought to be a laxative element.<sup>11</sup> The physician claimed also that *áleuron kríthinon* is more moist than bread that is made from it, but at the same time causing more flatulence, especially when it is cooked with milk.<sup>12</sup>

In the treatises of Galen's successors we can find a set of similar characteristics, mostly in a shorter version. Oribasius wrote in a passage of his *Collectiones medicae* based on Galen's *De alimentorum facultatibus* that, in general, products made from barley maintain the properties of the cereal used in their making. It suggests that *áleuron kríthinon* was considered to be drying, cleansing and to have a low nutritional value, as barley itself.<sup>13</sup> In other parts of his *magnum opus* Oribasius attributed to barley flour diaphoretic properties,<sup>14</sup> and claimed that the described product had a cooling effect.<sup>15</sup> Aetius of Amida, Alexander of Tralles, Paul of Aegina, and the anonymous author of the short treatise *De cibis* did not write anything about dietetic properties of *áleuron kríthinon*, but their descriptions of properties of barley itself, and other products made from it (groats, breads, soups etc.), are similar to earlier ones.<sup>16</sup> We propose that in the next three centuries after Oribasius the opinion about dietetic properties of barley flour remained unchanged, at least among medical authors influenced by Galenic ideas.

Coming to the second part of our paper, we are going to turn our attention to the medical role of *áleuron kríthinon*. Dioscurides' treatises suggest that it was a product from barley which was most commonly used in medical procedures. Numerous recipes can be found there, which anticipated an external use of barley flour. We will discuss only a few examples of them. According to Dioscurides'

<sup>&</sup>lt;sup>11</sup>Gal. Alim. Fac. 508, 10-509, 3, vol. VI.

<sup>&</sup>lt;sup>12</sup>Gal. Vic.At. 39, 1.

<sup>&</sup>lt;sup>13</sup>Orib. Coll.Med. I, 10, 1, 1–2, 4.

<sup>&</sup>lt;sup>14</sup>Orib. Coll.Med. XIV, 62, 1, 1–3, 2.

<sup>&</sup>lt;sup>15</sup>Orib. Coll.Med. III, 32, 1, 1.

<sup>&</sup>lt;sup>16</sup>Cf., for example, Aët. II, 268, 1 (barley as cooling foodstuff); II, 210, 2 (barley as drying substance); II, 225, 4 (barley as cleansing substance); Paul.Aeg. I, 78, 1, 12 (barley as food having a cooling and cleansing effect); I, 78, 1, 13 (drying while roasted into *álfita* groats); VII, 3, 10, 341–342 (barley as cooing, drying, and cleansing substance); *Cib.* 2, 4 (barley as cooling substance); 10, 2 (barley as cleansing food). Treatises written by Alexander of Tralles do not really contain any material that would allow us to draw direct conclusions about the dietetical properties of barley (and barley flour), with only one exception to this. In his work entitled *De febribus* he wrote, that *ptisáne* – one of the most famous soups of ancient Greek cuisine, very important also in medicine – was moistening, cleansing, reducing, and cooling foodstuff, cf. Alex.Trall. *Febr.* 309, 13–14, vol. I; 325, 21–24, vol. I.

De materia medica, áleuron kríthinon cooked with figs in melíkraton caused diaphoresis of swollen or inflamed areas of the human body.<sup>17</sup> When it was mixed with myrtle or wine, wild-growing pears, blackberries or pomegranate peels, and cooked, it cured gastric rheumatism, that is, a surge of undesirable juices to the abdominal cavity.<sup>18</sup> When mixed with guinces or vinegar, it was supposed to cure inflammations leading to gout.<sup>19</sup> Whereas *áleuron kríthinon* cooked with melilot and poppy heads was supposed to bring relief to those who suffered from chest pain.<sup>20</sup> Dioscurides also claimed that barley flour boiled with strong vinegar and applied when still hot was believed to cure leprosy, or rather, skin lesions caused by this disease.<sup>21</sup> Moreover, Dioskurides mentioned that *áleuron krithinon* mixed with veratrum and wine was an effective poultice for patients suffering from hydropsy,<sup>22</sup> and bindweed cooked with vinegar, ground and then mixed with barley flour was valued as an effective poultice treating sciatica.<sup>23</sup> In Dioscurides' Euporista vel de simplicibus medicinis it is stated that the doctor recommended ground root of arum with vinegar and barley flour as a cure for white rash called *alphós*  $(\dot{\alpha}\lambda\phi\dot{\alpha})^{24}$  while when lactation had to be facilitated, a poulitce made of barley flour, fennel and soaked barley grains mixed with the plant called Andrachna telephioides should be applied.<sup>25</sup> Finally, a thin fraction of tar mixed with *áleuron kríthinon* was recommended by Dioscurides as a medicine for alopecia areata (or spot baldness).<sup>26</sup>

In Galen's works barley flour appears to be an effective remedy used usually in the form of a poultice. In his *De alimentorum facultatibus*, the author informs that cataplasm made from *áleuron kríthinon* should not be recommended in every medical case (similarly to barley itself, which should not be eaten by some people either in good health or in sickness, due to some individual features of every single organism).<sup>27</sup> In *De simplicium medicamentorum temperamentis ac facultatibus* Galen classified poultices from barley flour as products with diaphoretic, drying and purifying properties.<sup>28</sup> As for details of its medical use, we can, for example, find in *De compositione medicamentorum secundum locos* a recipe taken from Soranus' (who lived at the turn of the 1<sup>st</sup> century AD) works for poultice made of *áleuron kríthinon* mixed with mallow to cure various types

- <sup>21</sup>Dsc. *Mat.Medic.* II, 86, 3, 1–2.
- <sup>22</sup>Dsc. Mat.Medic. IV, 162, 1, 1–4, 11.
- <sup>23</sup>Dsc. Mat.Medic. IV, 170, 4, 6–7.
- <sup>24</sup>Dsc. *Eup.* I, 112, 1, 1–3, 7.
- <sup>25</sup>Dsc. *Eup.* I, 130, 1, 1–2, 9.
- <sup>26</sup>Dsc. *Eup.* I, 89, 1, 1–3, 8.
- <sup>27</sup>Gal. *Alim.Fac.* 474, 4–9, vol. VI.
- <sup>28</sup> Gal. SMT 729, 14–730, 2, vol. XI.

<sup>&</sup>lt;sup>17</sup>Dsc. *Mat.Medic.* II, 86, 2, 2–3.

<sup>&</sup>lt;sup>18</sup>Dsc. *Mat.Medic.* II, 86, 2, 9–10.

<sup>&</sup>lt;sup>19</sup>Dsc. *Mat.Medic.* II, 86, 2, 10–11.

<sup>&</sup>lt;sup>20</sup>Dsc. *Mat.Medic.* II, 86, 2, 4–5.

of skin problems, such as pimples, minor injuries, or exanthema appearing on the head (Galen probably also meant skin ailments appearing on the face),<sup>29</sup> and other recipe – taken from Archigenes (lived in  $1^{st}/2^{nd}$  century AD) and recommended in case of earaches – for a substance consisting of barley flour and a ground poppy head boiled in wine.<sup>30</sup> The author of *De compositione medica-mentorum secundum locos* mentioned also a recipe borrowed from the legacy of Heraclides (the  $2^{nd}$  and  $1^{st}$  century BC). This medicine contained barley flour and cured *alopecia areata*.<sup>31</sup>

In Oribasius' works we can read about many medical procedures provided using *áleuron kríthinon*. We would like to present only a few of sample formulas. In passages based on Galen's treatises, included in *Collectiones medicae*, Oribasius described an effective diaphoretic substance against calluses caused by an excess of juices in the part of the organism in which hot local dyskrasia (δυσκρασία, disturbing a balance of humours) occurs. Such a substance consists of barley flour and lineseed or camomile.<sup>32</sup> Moreover, in his another work, Synopsis ad Eustahium filium, Oribasius listed áleuron from krithé as an appropriate means of treating ulcerations which were called concave (which were, as he wrote, by nature contaminated and thus required a substance that was gently drying).<sup>33</sup> From another medical doctor, Lycus (who lived in the 1<sup>st</sup> century BC), Oribasius took one more effective composition (placed in Collectiones medicae<sup>34</sup> and repeated in Synopsis ad Eutathium filium<sup>35</sup>) for poultice made with *áleuron kríthinon* and fruits of fig tree boiled in water with an optional addition of butter. This kind of poultice was helpful in treating persistent nodular calluses, mumps, and in general, when it was necessary to remove pus from certain parts of the body. Another recipe consisting of figs and barley flour, which one can find in Synopsis ad Eustathium filium too, included a remedy for treating nodular calluses, mumps (by removing pus gathered there), and also furuncles and other health problems.<sup>36</sup> Barley flour was utilised also in cases of liver disorders, which were regarded as inflammations, and which were manifested by severe pain. For such ailments the author of Eclogae medicamentorum recommended, among other things, poultices made from the abovementioned cereal product, with the addition of linseed and wheat flour. These remedies could be also prepared from *áleuron* kríthinon, áleuron linóspermon (ἄλευρον λινόσπερμον) and áleuron pýrinon

<sup>&</sup>lt;sup>29</sup>Gal. Comp.Med.Loc. 496, 6–497, 5, vol. XII.

<sup>&</sup>lt;sup>30</sup>Gal. Comp.Med.Loc. 620, 5-624, 14, vol. XII.

<sup>&</sup>lt;sup>31</sup>Gal. Comp.Med.Loc. 402, 10-403, 14, vol. XII.

<sup>&</sup>lt;sup>32</sup>Orib. Coll.Med. IX, 21, 18, 5–19, 4.

<sup>&</sup>lt;sup>33</sup>Orib. Syn. VII, 2, 1, 1–6, 2.

<sup>&</sup>lt;sup>34</sup>Orib. Coll.Med., IX, 34, 1, 1–7, 3.

<sup>&</sup>lt;sup>35</sup>Orib. Syn. I, 26, 6, 1–8, 3.

<sup>&</sup>lt;sup>36</sup>Orib. Syn. III, 80, 6, 1–7, 4.

(ἄλευρον πύρινον) separately.<sup>37</sup> Poultices made from barley flour mixed with linseed, fenugreek flour, resin, pigeon excrements, tar, and other ingredients, were helpful in treating purulent hepatitis.<sup>38</sup> Finally, for the spleen-related diseases, Oribasius recommended cataplasms made from *oxýmeli* (ὀζύμελι, a mixture of wine vinegar and honey), *áleuron kríthinon*, wormwood, and *Balanites aegyptiaca* L.<sup>39</sup>

In Iatricorum libri written by Aetius of Amida, a similar set of data can be found. Reading this encyclopaedia, we concluded that barley flour was quite commonly used in medical procedures, particularly for preparing poultices. We are going to present only a couple of examples to support this claim. According to Aetius, *áleuron kríthinon* was an ingredient of compresses helpful in treating serious injuries of hard tissues and muscles, head wounds, haemorrhages, swelling, ulcerations of the tumorous type, gangrene and erosions.<sup>40</sup> The author recommended using barley flour also in medicaments, which were supposed to cure inflammations of abdominal organs. That kind of cataplasm had to include several ingredients - barley flour, linseed with honey, nard oil, a bit of wine, mastic and wormwood leaves.<sup>41</sup> Furthermore, Aetius mentions that in joint ailments caused by the inflow if thin juices, *áleuron kríthinon* mixed with fresh cheese was applied externally.<sup>42</sup> Finally, in the deliberations concerning the measures taken in the case of fever, the author of *Iatricorum libri* recommended a lifestyle which included visits to a bath house, where *áleuron kríthinon* or broad bean flour was to be used for cleaning the body.43

In Alexander of Tralles' works, among substances which included barley flour used in therapies the most numerous were poultices (similarly to other authors). Here we present only several examples. In *De febribus* it is stated that in some fevers caused by an inflow of phlegm cataplasms prepared from linseed or barley flour boiled in water with addition of camomile or melilot should be used.<sup>44</sup> In another kind of fever (called a four-day fever), caused by overheating of bile, Alexander, in addition to a proper diet, recommended poultices from *áleuron krithinon*, linseed and camomile extract.<sup>45</sup> The same remedies were effective in another kind of illness, called the three-day fever.<sup>46</sup> In turn, in his *Therapeutica* – beginning an extensive discussion dealing with cataplasms

- <sup>40</sup>Aët. I, 172, 1–10.
- <sup>41</sup>Aët. IX, 15, 28–30.
- <sup>42</sup>Aët. XII, 42, 1–54.
- <sup>43</sup>Aët. V, 69, 36–41.
- <sup>44</sup>Alex.Trall. *Febr.* 321, 24–323, 22, vol. I.
- <sup>45</sup>Alex.Trall. *Febr.* 411, 7–417, 11, vol. I.
- <sup>46</sup>Alex.Trall. *Febr.* 413, 1–5, vol. I.

<sup>&</sup>lt;sup>37</sup>Orib. *Ecl.Med.* 48, 5, 1–2.

<sup>&</sup>lt;sup>38</sup>Orib. Ecl.Med. 48, 15, 1–5.

<sup>&</sup>lt;sup>39</sup>Orib. *Ecl.Med.* 49, 2, 2–3.

- Alexander claimed that a compress made from barley flour boiled in must or sweet wine is suitable for the treatment of inflammatory disorders appearing on the body surface.<sup>47</sup> Moreover, the 6<sup>th</sup>-century author ensured that this kind of cataplasms are particularly effective when one wants to remove pus from the body. This type of medicines must be of great importance in the therapeutics of Alexander, as he returned to the them once again, to note that medications based on, or with addition of, barley flour are effective in case of severe and painful inflammation.<sup>48</sup> Besides, a similar opinion on *áleuron kríthinon* applications was repeated the third time in the next section of Therapeutica devoted to cataplasms.<sup>49</sup> In Alexander of Tralles' main work we can find also some recipes for compresses, which were supposed to cause the expulsion of pus. One of them included barley flour, cumin, salt, coal tar, wax, olive oil, a type of resin, marshmallow, a thin *ptisáne* (πτισάνη, porridge or soup made from barley and considered for its medical properties<sup>50</sup>), or a linseed extract, and some other ingredients. Alexander wrote that he used this medication in treating mumps, but also in similar ailments in other parts of the body.<sup>51</sup>

*Åleuron krithinon* is an important element of some medications also in Paul of Aegina's *Epitome*. Once again, like in works analysed above, this product was used mostly as an ingredient of poultices. It is worth citing some of Paul's recipes. In treating mumps, a cataplasm from barley flour cooked in *melikraton* or in fenugreek extract, marshmallow, or in camomile was administered.<sup>52</sup> When patients suffered from orthopnoea – an ailment, in which breathing was possible only in standing position – from asthma, or dyspnoea, poultices prepared from figs, darnel or barley flour with addition of resin, wax, and honey should be, according to Paul, applied.<sup>53</sup> In the treatment of patients spitting out phlegm, or with suspected tuberculosis, a cataplasm from barley flour cooked with figs, resin, pigeon excrements, soda and ryegrass was recommended.<sup>54</sup> A cataplasm from *áleuron kríthinon* mixed with *oxýmeli*, or a compress from burnt barley grains with wine vinegar were applied to a wound resulting from a bite of a common shrew (in Greek *mygalé*, [μυγαλῆ]).<sup>55</sup>

The final source under analysis, the anonymous short treatise *De cibis*, does not mention any medical use of *áleuron kríthinon*. Actually, the only food

<sup>&</sup>lt;sup>47</sup>Alex.Trall. Ther. 85, 11–12, vol. II.

<sup>&</sup>lt;sup>48</sup>Alex.Trall. Ther. 107, 21–29, vol. II.

<sup>&</sup>lt;sup>49</sup>Alex.Trall. *Ther*:145, 1–8, vol. II.

<sup>&</sup>lt;sup>50</sup> For more information about this famous product see, for example: Darmstaedter 1933: 181–201; Kokoszko/Jagusiak/Rzeźnicka 2013: 282–292; Jagusiak 2016: 79–90.

<sup>&</sup>lt;sup>51</sup>Alex.Trall. *Ther*: 117, 1–21, vol. II.

<sup>&</sup>lt;sup>52</sup> Paul.Aeg. III, 23, 13, 1–29.

<sup>&</sup>lt;sup>53</sup> Paul.Aeg. III, 29, 1, 1–28.

<sup>&</sup>lt;sup>54</sup> Paul.Aeg. III, 32, 1, 1–2, 30.

<sup>&</sup>lt;sup>55</sup> Paul.Aeg. V, 12, 1, 1–23.

obtained from barley whose medicinal use was explicitly stated by the author of *De cibis* is *ptisáne*.<sup>56</sup>

To sum up, we would like to turn our attention to four questions involving a medical role of barley flour in ancient and Byzantine healing. Firstly, *áleuron kríthinon* is present in almost all analysed sources as a medicine. Between the 1<sup>st</sup> and 7<sup>th</sup> century only the anonymous author of short and full of shortcuts treatise De cibis did not mention it as a drug even once. In other words, this product was constantly prescribed (and, consequently, used) by medical authors in the period lasts circa 600 years. Secondly – in the beginning of that period ancient physicians, especially Galen, evolved a coherent doctrine about dietetic and medical properties of barley flour, which was later accepted and repeated by next generations of medical doctors. Thirdly, *áleuron kríthinon* was recommended mostly as an external medicine, in the form of poultice, or cataplasm, used for treating many illnesses of different etiology. And lastly, what is especially important, the case of barley flour is not special. Medical authors of late antiquity and early Byzantine times carefully prescribed a large number of products made from at least ten species of cereals, and ten species of vegetables, fruits, legumes etc., which were used in healing. In this context *áleuron kríthinon* is a typical ingredient of remedies used in times when medicine was largely based on natural products, often well-known and popular in everyday life.

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### BARLEY FLOUR (*ÁLEURON KRÍTHINON*) IN ANCIENT AND EARLY BYZANTINE MEDICINE (I – VII C. AD)

#### Summary

Common barley was one of the most important cereals of antiquity, well-known, cultivated and domesticated in the Old World no later than in 9000 BC. For Greeks and Romans it formed – together with bread wheat – a pair of products which was a staple food for most groups (economic, occupational and ethnic) of society either in antiquity, or in early Byzantine times. Among different kinds of foodstuffs made from barley was flour.

Greek-writing physicians of the period analysed in our research, namely Dioscurides, Galen, Oribasius, Aetius of Amida, Alexander of Tralles, Paul of Aegina and the anonymous author of the short treatise widely known under the Latin title *De cibis* left much information about dietetic characteristic and medical use of barley flour between the 1<sup>st</sup> and 7<sup>th</sup> century AD. This product was considered to be to be drying, cleansing, less nourishing than the same type of flour obtained from bread wheat, quickly and easily digested, and subsequently absorbed by the organism, diaforetic and cooling. Medical authors provided the use of remedies made from barley flour in some therapies. In the form of poultice/cataplasm (often mixed with other ingredients) it was recommended in the treatment of skin problems, such as pimples, minor injuries, or exanthema appearing on the head, earaches, persistent nodular calluses, mumps. It was also used when it was necessary to remove pus from certain parts of the body, in spleen diseases, and in the cases of specific fevers.

The popularity of medicaments made from barley flour in the analysed period seems to be constant, and medical treatises written between the 1<sup>st</sup> and 7<sup>th</sup> century AD suggest an existence of a coherent doctrine about dietetic and medical properties of described product.