

REVIEW ARTICLE

MEDICINAL HERBS AND PLANTS IN MEDIEVAL MEDICAL PRACTICE (BASED ON THE LATIN POEM “DE VIRIBUS HERBARUM” BY MACER FLORIDUS)

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Marta J. Petryshyn¹, Halina M. Zahajska², Oxana V. Liubimova², Veronika H. Todoshchuk²¹VASYL STEFANYK PRECARPATHIAN NATIONAL UNIVERSITY, IVANO-FRANKIVSK, UKRAINE²YURIY FEDKOYCH CHERNIVTSI NATIONAL UNIVERSITY, CHERNIVTSI, UKRAINE

ABSTRACT

The aim: The aim of our research is to make an inventory and systematize prescriptions for the use of medicinal plants during the early Middle Ages, based on Macer Flordus' original Latin text “De viribus herbarum”, to develop awareness of the role of phytotherapy in medieval medicine and the possibility of integrating herbal medicine with modern conventional methods of prevention and treatment.

Materials and methods: The material for this study is a medieval Latin didactic poem by the 11th-century French physician and researcher Odo of Meung-sur-Loire (pseudonym Macer Flordus), the extant manuscripts of which are known in the history of medicine as “De viribus herbarum” or “De natura herbarum”. The medical-pharmacological treatise (published in 1831 by Ludwig Choulant) describes the medicinal properties of seventy-seven plants of peasant gardens, grasses of meadows and fields of Europe, medicinal herbs of medieval apothecary gardens as well as aromatic plants and spices of the East.

Conclusions: Medicinal plants and herbs were successfully used to treat diseases of the gastrointestinal tract, spleen, hepatobiliary system, urinary and respiratory organs and were also applied in gynecology, dermatology, ophthalmology and dentistry.

KEY WORDS: history of medicine, phytotherapy, Odo Magdunensis, herbal text

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INTRODUCTION

For thousands of years, mankind has accumulated information about the medicinal properties of plants and learned how to use them to treat various diseases. The centuries-long experience of peoples provided the basis for the development of phytotherapy. At present, the rapid development of synthetic organic chemistry and the pharmaceutical industry has somewhat diminished interest in the use of medicinal plants in medical practice, but herbal medicines often have undeniable advantages over synthetic drugs, as they provide a pronounced therapeutic effect with minimal risk of side-effects. Given this, phytotherapy should have its rightful place in clinical practice, and medical and pharmaceutical professionals should be interested in learning more about herbal medicine in the Middle Ages and how it can be adapted to modern conditions.

THE AIM

The aim of our research is to make an inventory and systematize prescriptions for the use of medicinal plants during the early Middle Ages, based on Macer Flordus' original Latin text “De viribus herbarum”, to develop awareness of the role of phytotherapy in medieval medicine and

the possibility of integrating herbal medicine with modern conventional methods of prevention and treatment.

MATERIALS AND METHODS

The material for this study is a medieval Latin didactic poem by the 11th-century French physician and researcher Odo of Meung-sur-Loire (pseudonym Macer Flordus), the extant manuscripts of which are known in the history of medicine as “De viribus herbarum” or “De natura herbarum” [1]. The medical-pharmacological treatise (published in 1831 by Ludwig Choulant) describes the medicinal properties of seventy-seven plants of peasant gardens, grasses of meadows and fields of Europe, medicinal herbs of medieval apothecary gardens as well as aromatic plants and spices of the East.

We used a combination of general scientific and special research methods that complement each other in order to achieve the aim. Theoretical analysis and synthesis of the professional literature were chosen to explore various views on the selected issues. To interpret the factual material, a descriptive method was used. The method of contextual analysis enabled textual fragments to be selected and the healing properties of various plants to be inquired into.

REVIEW AND DISCUSSION

A survey of the scientific literature shows that the didactic poem “De viribus herbarum” has rarely been the subject of study. Some references to the influence of Macer Floridus on the development of herbal therapy in the early medieval medicine can be found in the monograph by I. Eisenmann-Tappe and J. Mayer [2]. The authors have attempted to adapt medieval prescriptions for herbs and plants to the requirements of modern medicine. Bruce P. Flood, Jr. examines the influence of Pliny the Elder (c.79 AD) on the generalization of the recommendations and prescriptions for herbal medicines, particularly mint, given in the text of Macer Floridus’ poem [3]. The subject of T. Niedenthal’s research interests is the comparative analysis of the use of seventy-seven plants described in the poem, in the Middle Ages and in modern medicine [4]. Thoughts on the role of Macer Floridus in the development of phytotherapy can be found in the research of J. Mayer [5, 255]. The story of the origin of the poem “De viribus herbarum” and its influence on medical practice and didactic poetry of subsequent centuries are covered in the heritage of F. Voronov [6]. It was found that medicinal plants were mostly used for the treatment and prevention of diseases of the gastrointestinal tract, ENT organs and respiratory system, and eyes [6, 5]. The aim of D. Stehlíková’s research is to study the experiences with the use of wormwood (*Artemisia abrotanum*) described in the poem as well as in four student commentaries on the early 15th century work “De viribus herbarum” and the manuscript from Znojmo, deposited in the Czech National Library [7].

Despite previous work, we believe that the prescriptions for the use of medicinal plants and herbs for the treatment and prevention of diseases in the medieval medical practice, contained in the original Latin text, should receive more extensive coverage, as the principles of modern phytotherapy are grounded in the centuries-old experience of the ancestors.

Medicinal plants have long been used in medicine in natural and processed form as an effective natural remedy for treating and increasing the body’s resistance due to the complex of biologically active substances (alkaloids, saponins, glycosides, phytoncides, vitamins, etc.). The analysis of the text of the poem “De viribus herbarum” revealed that medicinal herbs and plants were used in the Middle Ages to treat diseases of the gastrointestinal tract, spleen, hepatobiliary system, respiratory organs, kidneys, and urinary tract. Prescriptions collected by the French physician promoted recovery from burns, wounds, injuries, were used to treat gynecological pathologies, and were effective in dermatology, ophthalmology, and dentistry.

The use of medicinal plants against digestive diseases has a long history, as in medieval cities, unlike the ancient world, there were practically no water supply and sewage systems, no conditions for food storage. People lived in overcrowded houses with poor ventilation, unsanitary conditions prevailed, and deaths from epidemics, infectious diseases and digestive diseases were the scourge of the times.

The therapeutic effect of herbal treatment of digestive disorders was based on anti-inflammatory, antispasmodic, antimicrobial, enveloping, laxative, carminative, stomach and intestinal motility stimulating and choleric properties of plants. Our analysis of the poem reveals that forty-three plants, namely wormwood, nettle, rue, celery, dill, fennel, leek, chamomile, cabbage, oregano, iris, caraway, sorrel, pepper, etc., were used in medieval medical practice to treat gastrointestinal disorders, diseases of the spleen and hepatobiliary system. These medicinal herbs and plants have almost all biologically active components in their arsenal, which allows their prolonged use without addiction.

An imbalance of beneficial and pathogenic microorganisms caused intestinal disorders. If useful bacteria cannot neutralize the toxins produced by putrefactive bacteria, constipation, diarrhea, increased flatulence, and stomach pain occur. To restore the micro-flora of the gastrointestinal tract, medieval medicine recommended not only food rich in dietary fiber, but also medicinal plants. The analysis of the text of the poem revealed that celery, rue, lovage, caraway, dill, and garlic have a carminative effect, that is, through the spasmolytic effect, stimulate passage of flatus formed in the intestines as a result of the processes of fermentation and putrefaction, and eliminate the feeling of bloating. For example, medieval physicians recommended applications of crushed garlic and pork fat as a remedy for bloating: *Porcino iungens adipi si conteris ipsum / Non modicos reprimes superaddens saepe tumores* (V, 191–192)¹. Decoction of green rue in spicy vinegar was regarded an effective remedy against flatulence: *compescit talis decoctio tormina ventris* (VII, 273). For the syndrome of excessive gas and dyspepsia, warm water with pounded dill: *Cum tepida tritum patiens si potet Anethum, / Intastinorum curat ventrisque dolorem* (X, 405–407), wine with chamomile: *Tormina sic sedat stomachique inflatio potu* (XIV, 569), or decoction of lovage root: *Non modicum colicis prodest haec mansa vel hausta, / vel si radice elixatura bibatur* (XXV, 894–895) were recommended.

Wood betony, dill, cabbage, oregano, mint, pepper, caraway, galangal, and cinnamon were used to facilitate digestive processes. For example, a pinch of wood betony powder with honey helped to improve digestion: *Pondere vero fabae pulvis cum melle voratus / Post coenam stomachum iuvat, ut bene digerat escam* (XI, 480–481). Use of oregano with white wine also had a therapeutic effect: *Evenit, ex vino prodest, si sumitur albo; / Cum calida morsus stomachi lenire probatum est* (XXXVIII, 1313–1314). Peppermint was found to have a stimulating effect on the secretion of digestive glands: *Illius potu vis digestive iuvatur* (XLVII, 1570). Raw or boiled black pepper with honey was also used to treat sluggish bowels: *Crudum vel coctum sumptum, vel melle iugatum, / Vim digestivam stomachi iecorisque iuvabit* (LXVI, 2066–2067). Functional activity of the stomach and bowels was stimulated by car-

¹The Roman numeral stands for the number of the chapter, the Arabic numeral – for the number of the verse line.

away seeds: *Et digestivum stomachi iecorisque calorem excitat (LXIX, 2115)* and cinnamon: *Humores stomachi siccant, corroborat ipsum, et facit acceptas ut digerat ocuis escas (LXXIII, 2151)*. Cabbage that is rich in vitamins and fiber was considered one of the best remedies to improve motility and facilitate excretion of digested food from the body: *Atque iuvat stomachum sumptas ut concoquat escas (XXXVI, 1229)*. For therapeutic purposes, as a means to regulate the functioning of the gastrointestinal tract, gruel of boiled garlic was recommended: *Aduvat incoctum puti sumptumque tenesmon (V, 190)*. To prevent and treat constipation, decoction of the white base of the leaves of leeks was used as a mild laxative: *Sic ut aquam primam mutes, addasque secundam / Utilis eius aquae duro fit potio ventri (XIII, 526–528)*. Lettuce, which since ancient times has been known both as a food plant and as a medicinal plant, when cut, was also prescribed as a laxative: *Utilis est stomacho, ... mollit et alvum, / Omnibus his melius prodest decocta comesta (XX, 767–768)*. The seeds of watercress, a herbaceous salad plant of the cabbage family, mashed with a drachma of warm water, was considered an effective remedy against constipation: *Semen cum tepida contritum pondere dragmae / Et bibitum, dicunt quod duram molliat alvum (XXX, 1013–1014)*, half-raw cabbage: *At semicrudus solet illam solver sumptus (XXXVI, 1231)*. Onions had a similar effect on gut motility: *Et dicunt illas mollire salubriter alvum (XXXIII, 1098)*.

Caraway, lettuce, leeks, mint, sorrel, poppy, cabbage, galingale and cinnamon were used by medieval physicians as soothing and astringent agents for the gastrointestinal tract. For example, leek with wine was recommended to treat diarrhea: *... cum vino stringere ventrem (XIII, 529)*, as well as lettuce seeds: *Cum vino bibitum fluxum quoque reprimat alvi (XX, 771–772)*, seeds of black poppy: *Sperma nigri bibitum cum vino stringere ventrem (XXXII, 1056)*, or caraway seeds: *Et fluxum ventris in aceto stringere coctum (LXIX, 2117)*. As a treatment for diarrhea boiled cabbage: *Si multum coquitur, restringere dicitur alvum (XXXVI, 1230)*, sorrel herbs: *Sumptaque sicut olus fertur restringere ventrem (LXIII, 1999)*, cinnamon: *Humores stomachi siccant, corroborat ipsum (LXXIII, 2150)* were used. For pain and spasms in the intestines, it was recommended to use nettle seeds with honey: *Illius semen colicis cum melle medetur (IV, 120)*, decoction of rue in spicy vinegar: *Si coquis hanc in aqua, cui vinum iunxeris acre, / Compescit talis decoctio tormina ventris (VII, 272–273)*, wine with camomile: *Aut si cum vino potetur saepius illa; tormina sic sedat (XIV, 569)*, or the common tormentil: *Vim digestivam iuvat hoc colicisque medetur (LXX, 2129)*. Pennyroyal and fennel were believed to have medicinal properties that could help relieve heartburn resulting from digestive and gastric motility disorders. Pennyroyal was used with diluted vinegar: *Cum pusca sumpta vel aceto quod sit aquosum (XVI, 647)*, and fennel – with water: *Fervorem stomachi cum lymphā mitigat hausta (XVII, 700)*. Also, fennel and wine were used to stop bouts of nausea: *Nausea cum vino sumpta sedabitur illa (XVII, 699)*. To stop vomiting, garden chervil soaked in strong

vinegar: *Intictum valido si manducetur aceto / saepe solet vomitum ventremque tenere solutum (XXVII, 940–941)* or pennyroyal decoction: *... vomitum quoque detinet hausta (XLVII, 1571)* were prescribed.

Plants regulating bile formation and bile secretion such as: wormwood, garlic, mint, parsnip, iris, pepper, verbena, etc. proved to be therapeutic for liver and biliary tract diseases. For example, garlic with coriander and wine: *... fuit usus cum coriandro / Et vino, causas sic curans ictericorum (V, 180–181)*, camomile decoction: *Icteris prodest eius decoctio sumpta / Et mire prodest iecoris potato querelis (XIV, 573–574)*, which stimulated the movement of bile and liver function, verbena with wine, which in the Middle Ages was considered a panacea for various diseases: *Pestiferos morsus curat superaddita trita / cum vino (LVIII, 1863)* were recommended for treating various kinds of jaundice. Absinthin, a bitter glycoside of wormwood, combined with celery, stimulated bile secretion and increased its outflow: *Icteris crudam dabis hanc apio siciatam (III, 73)*. Liver diseases were also healed by parsnip roots with honey water: *Mulsa si decoquis eius / radices, multum decoctio proderit eius, Si potanda datur, splenis iecorisque querelis (XXXVII, 1265–1267)*, raw or boiled black pepper with honey: *Crudum vel coctum sumptum, vel melle iugatum, / Vim ... iecorisque iuvabit (LXVI, 2066–2067)*. In medieval medicine, the cholokinetic properties of iris rhizome powder with honey water were known: *Cum mulsa bibitus choleram depellit (XLIII, 1469)*, which in modern medicine is mainly used as an analgesic, antitumor and sedative means.

The spleen is an important organ in the human body, performing the function of protection against infections, participating in blood purification, as well as being one of the main storages of blood. To treat diseases of the spleen, nettle, celery, cabbage, parsnip, birthwort, iris, peony, and sorrel were used. The simplest remedies for spleen diseases during the Middle Ages were cabbage soaked in vinegar: *Assumptus crudus, sic ut tingatur aceto, / Splen reprimat tumidum (XXXVI, 1232–1233)*, iris powder and wine mixture: *Spleneticis et contractis et frigore laesis / Cum vino bibitus pulvis medicabitur eius (XLIII, 1472–1473)*, peony mixture with honey water and crushed almonds: *splen ... cum mulsa sumpta iuvabit / Si iungatur ei violenter amygdala trita (XLIX, 1607–1608)*. Splenomegaly was treated with applications of decoction of mashed sorrel root in strong vinegar on the spleen area: *Decoctas valido redices eius aceto / Et tritas spleni superaddito saepe tument (LXIII, 2008–2009)*, and consumption of grated celery with dill juice: *Hydropicos et splen tumidum iuvat ille ... / Si cum feniculi succo contrita bibatur (VIII, 360–362)*. For splenosclerosis it was advised to use decoction of birthwort, which modern folk medicine applies in gynecology and dermatology: *Splenis duriciam solvit laterisque dolorem, / si mixta potatur aqua (XLI, 1413)*.

In the arsenal of medicinal plants used to cure respiratory and ENT diseases, the text of the poem mentions thirty-four plants, namely wormwood, nettle, plantain, garlic, rue, leek, thyme, poppy, onion, violet, elecampane,

melissa, etc., most of which are also applied by modern medicine. Therapeutic value of the mentioned herbs and plants is due to their antimicrobial, mucolytic, antipyretic, hypersensitizing, and anti-inflammatory properties. Since cough is the most common symptom of diseases of the bronchopulmonary system, a significant part of the recommendations of the poem is devoted to the treatment of this very symptom. One of the best cures for coughs, pneumonia, and pleurisy was nettle seed powder with honey: *Illius semen ... cum melle ... et tussim veterem curat, si saepe bibatur* (IV, 120–121). Due to phytoncides with antiviral, bactericidal and fungicidal properties, garlic decoction was considered effective for suffocation and coughing: *Elixum tussim iuvat et suspiria sedat* (V, 187). In medieval phytotherapy, the powder of buckeye with honey was used to treat congestive cough with profuse mucus, suffocation, and pleurisy: *Betonicae pulvis cocto cum melle iugatus / Empicos, tussimque iuvat, suspiria sedat* (XI, 437–438). Pennyroyal powder with honey was considered one of the best expectorants: *Illius pulvis cum melle vel haustus / Pectoris humores viscosos extenuare* (XVI, 644–646), and warm wine with this herb provided a soothing effect in case of cough: *Tussim compescit cum vino sumpta tepenti* (XVI, 666). Powder of summer savory with honey or wine was used as a cure for the respiratory system diseases: *Illius pulvis cum cocto melle subactus / Et mansus (vel cum vino si sumitur idem) / Pectoris humorem pellit per sumpta tenacem* (XXIII, 847–849). Oregano powder with honey was considered effective in the treatment of bronchitis and other respiratory diseases due to its expectorant properties: *Illius pulvis tussim cum melle repellit* (XXXVIII, 1297). Curative properties were also found in the fresh stems, leaves and flowers of violets, rich in saponin and alkaloid Violin, which have expectorant effects and are good against lung diseases in children: *Mollibus in costis aut in pulmonibus ipsis, / Sedat si mixto potabitur amne recenti; / Infantum tussim sic et suspiria ssedat* (XL, 1372–1374). Iris root decoction with wine was also recommended as a remedy against upper respiratory diseases: *Cum vino sedat tussim* (XLIII, 1466). Cough and shortness of breath were helped by the powder of elecampane with honey: *Eius radicum cum melle voratus / Tussim compescit* (XLIV, 1499–1500), decoction of fresh melissa: *Eius si viridis decoctio saepe bibatur / ... Asthmaticis eandem prodest orthopnoicisque* (L, 1655–1657).

Various herbs and plants were as well applied in otology and laryngology. For example, wormwood steam was used to relieve blocked ears, and a mixture of honey, sodium bicarbonate, and wormwood was recommended for angina: *Decoctaque vapor obstrusas liberat aures, / Si manant sanie cum melleterens superadde. / Subvenit angina melli nitroque iugata* (III, 81–83). Earache was treated with goose lard and garlic drops: *Anseris huic adipem iungas tepidumque dolenti / Infudas auri, praeclare subvenit illi* (V, 185–186), wood betony juice with rose oil: *Illius succus roseo commixtus olivo / Auribus infuses varios fugat dolores* (XI, 435–436), warm leek juice with goat's bile or honey water: *Auris compescit cum caprae felle*

dolorem / Praesta idem pariter cum mulsa mixtus et auri / infusus tepidus (XIII, 538–539), plantain juice: *Et dolor hoc auris sedabitur* (VI, 220), horeground juice with rose oil: *Auriculaeque gravem dicunt curare dolorem, / Hunc mixtum roseo si fundas intus olivo* (XLII, 1452–1453), onion juice with breast milk: *Femineo lacti commixtus succus earum / Pellit saepe graves infusus ab aure dolores* (XXIII, 1105–1106), and nightshade juice: *Dicitur auriculae mire sedare dolorem / Illius succus, si sensim funditur intus* (LX, 1920–1921). To restore hearing, ear drops of sour sorrel juice were recommended: *Auribus expressus si succus funditur eius / Adiuvat auditum mire* (XVIII, 737–738). To regain voice in case of laryngitis, an infusion of poppy leaves was applied to the throat: *De foliis eius tritis factum cataplasma / Eximie fauces dicunt curare tumentes* (XXXII, 1062–1063), and green cabbage juice – to sip: *Affirmat raucae multum succurrere voci* (XXXVI, 1258). Wool soaked in centaury juice, which modern medicine uses mainly to stimulate appetite and increase gastrointestinal activity, has been applied to treat polyposis: *Hoc succo lanam madidam si naribus addas, / Compescet morbum, qui polyposus est vocatus* (LIII, 1738–1739).

Inevitable concomitants of medieval man were wounds, which could cause malfunctions of the body up to and including death. Therefore, one of the primary tasks of surgery was care and healing of wounds. Forty-four of the 77 plants described in the poem, namely: nettle, plantain, marshmallow, dill, juniper, sleek, rose, soft rush, centaury and others were used by doctors to treat tissue damages and wound infections, to cure burns and to stop bleeds. These plants contain biologically active substances (plant antibiotics, phytoncides, essential oils, resins, tannins, organic acids, alkaloids, glycosides) that inhibit the growth of pathogenic microorganisms. To treat infected wounds, plants that produced both curative and antimicrobial effects were used. For example, to accelerate the process of purification and granulation of wounds, poultices with nettle and salt: *Cum sale de foliis eius factum cataplasma / Ulceribus prodest et sordida vulnera purgat* (IV, 125–126), applications of plantain with honey: *nimis humida vulnera siccant, / Si superaddatur cum melle, et sordida purgat* (VI, 204–205), bandages with celery juice, spelt and egg white: *Illius succus farris cum polline mixtus / Atque ovi lacrymo vulnus bene purgat et ulcus, / Si superaddatur emplastri more frequenter* (VIII, 363–365) were recommended. A pronounced bactericidal effect against pathogenic microflora was observed when juniper with honey: *Vulnus cum melle vel ulcus / Fortiter exsiccate, et sordes purgat eorum* (XII, 494–495), rose oil with vinegar: *Permiscendo sibi si forte iugatur acetum / Expurgat sordens vulnus repletque profundum* (XXI, 794–796), white horehound with honey: *Si mel Marrubio iungatur vulnera purgat* (XLII, 1445), grass of wall germander mashed with honey: *Sordens purgabit vulnus, licet inveteratum, / Si cum melle teras et tritam desuper addas* (LIX, 1912–1913), or aloe powder: *Vulnus quodque recens putredine purgat ab omni / Illius iniectus pulvis siccandoque sanat* (LXXXVII, 2240–2241) were put onto wounds. Applications of mashed plantain:

Stringit manantem superaddita trita cruorem (VI, 210), a mixture of aloe, egg white, and frankincense: Huic aloë iungens lacrymumque albuminis ovi, / Sic ut sit spisum, sectae superaddito venae, / Aut his vulneribus nimioque sanguine manant (LXXVI, 2220–2225) were applied on wounds as hemostatic agents. Medieval doctors treated canker sores with applications of grated parsnips: Appositum cancris tritum cum melle medetur (XXXVII, 1282), chervils with honey: Appositum cancris tritum cum melle medetur (XXVII, 929) or cabbage: Vulnera non tantum curare recentia Caulem / ipsemet affirmat, sed quamvis inveterata, / Et cancos etiam (XXXVI, 1208–1210). Some plants were used in proctology to treat hemorrhoids. For instance, it was recommended that flowers of marshmallow mashed with wine: Vel si cum vino tritum florem superaddas, / ... anumque iuvare dolentem (IX, 371–372), roasted seeds of dill: Apponas haemorrhoidis si semen Anethi / Ustum, curat eas (X, 423–424), chopped onions: Hasque iubent haemorrhoidis superaddere tritas (XXXIII, 1123), mallow decoction: ... et ani / Haec eadem mire prodest (LXII, 1992) should be put on piles. To treat anal fissures, a wax ointment based on the decoction of the herbaceous part of violets was used: Ani fissuras, quas appellant ragadias, / Addita cerotis medicatur saepe perunctas (XL, 1361–1362).

To treat burns, plantain with egg white: Ovi cum lacrymo mire medicatur adustos (VI, 212), an ointment of lily root bulb, plums and olive oil: Eius radices bulbis, quae Lilia profert, / Sub prunis tectus iuncto quoque tritus olivo / Prodest usturis mire superadditus ignis (XXII, 812–814), poultices of mallow leaves boiled in olive oil: Decoctis eius foliis si iungis olivum, / ... Et combusturis illo bene subvenis ignis (LXII, 1987–1989) were administered. Animal bites were cured with poultices of marshmallow leaves boiled in olive oil: Decoctis oleo foliis factum cataplasma / Quosvis pestiferous morsus ... curat (IX, 393–394), or decoction of oregano in wine: Illius in vino curat decoctio sumpta / Quosvis pestiferous morsus, si saepe bibatur (XXXVIII, 1287–1288). To fix fractures, medieval doctors used leek juice: Fracturas solidat cito, duritiasque relaxat (XIII, 545). Poultices made of betony leaves were used to treat skull fractures: Tritaque fracturae capitis haec sola medetur (XI, 444).

In gynecology, herbal remedies have been successfully used in the treatment of uterine hemorrhage, menstrual disorders, other diseases of the female reproductive organs. The analysis revealed that forty-three plants were utilized in gynecological practice. To relieve menstrual symptoms, women would take decoctions of wormwood: menstrua solvit (III, 60), catnip: Appositu potuque suo cito menstrua purgat (XV, 603), and lemon balm: decoctio menstrua purgat (L, 1660), wine with wild thyme: Cum vino ... solet producere menstrua potus (XXXIX, 1340–1341). Polymenorrhoea was treated with sour sorrel leaves and wine: Cum vino potato ... manatia menstrua sistit (XVIII, 728–730). It was believed that in case of metrorrhagia, peony seeds with wine: Seminis illius ter quinque rubentia grana / Cum vino fluxum matricis sumpta coërcent (XLIX, 1630–1631), as well as a mixture of the seeds of henbane and poppy seeds with honey water: Seminis illius obolus cum semine

mixtus / Miconis pariter cum mulsa sumitur illis / Utiliter, fluxum matricis quae patiuntur (LXI, 1952–1953) would be helpful. Local effect on the area of the uterus was applications of wool with the juice of plantain: Succus cum lana matrici subditus eius / Stringit manantem nimium siccando cruorem (VI, 229–230). Powdered leaves of betony with honey water were recommended for genital prolapse and ruptures of the uterus: Cum mulsa bibitus prodest pulvis foliorum / Ruptis atque steras potus levat iste cadentes (XI, 474–475). Based on empirical experience, specific plants were used to induce spontaneous miscarriage. The abortifacients included wormwood, rue, juniper, camomile, pennyroyal, salvia, galingale, elecampane and wall germander. The abortive effect of the mentioned plants is caused either by the content of alkaloids or essential oils, or by a pronounced hemostatic action. For example, the alkaloid-rich salvia with honey water: Cum mulsa ... pellit abortivum (XXIV, 871–872) and rue: Si saepe bibatur, / Expellit partum potu (VII, 270) were used as abortifacients. According to medieval physicians, leek juice helped restore women's reproductive function: Reddit fecundas mansum persaepe puellas (XIII, 519). To stimulate labor and accelerate placenta delivery, decoctions of horehound seeds: Accelerat partus eadem pellitque secundam (XLII, 1444), mint: Haustaque cum sapa partum solet accelerare (XLVII, 1478), and fumigations with darnel: Parturiens mulier si se subfumiget illa, / Asseritur citius ventris deponere pondus (LXIV, 2027–2028) were considered helpful.

In medieval medicine, wormwood, garlic, rue, and catnip were successfully applied against helminth infestations. For example, the smell of grated garlic or boiled garlic in vinegar and honey fought various types of parasitic worms: In mulsa coctum commixtum cui sit acetum / Et bibitum vermes ventris tineasque repellit (V, 166–167).

Medieval doctors successfully applied twenty-three plants to treat eye diseases, namely wormwood, plantain, celery, wood betony, fennel, sour sorrel, purslane, onion, cabbage, violet, henbane, horeground, centaury, white hellebore, black false hellebore, greater celandine, wall germander, mallow, cowbane, black pepper, cinnamon, nard, aloe. It was believed that the eye ointment made of wormwood and honey restored visual acuity: Et claros oculos reddit cum melle peruncta (III, 79). The roots of violet, saffron and myrrh: Radices Violae cum mirrha tunde crocoque, / Hoc inflammatis oculis apponito nocte (XL, 1355–1356), the juice of henbane seeds: Viscosum calidumque potest compescere rheuma, / si fuerint oculi patientis saepe peruncti (LXI, 1949–1950) or cowbane: Vel si sint eius circumlita lumina succo; / Haec quoque pellentur sacer ignis et herpeta cura (LXV, 2043–2044) were ointmented over the eyes when treating conjunctivitis.

In the medical treatise we also find advice on herbal treatment of the diseases of the oral cavity. Plantain juice of the was a remedy for gum disease: Gingivas reprimet tumidas et sanguine plenas (VI, 226) and stomatitis: Sordida purgabit bene vulnera quaelibet oris, / Ore diu tentus si succus volvitur eius (VI, 217–218), pennyroyal podwer strengthebed the gums: Gingivas sicci pulvis

confirmat et usti (XVI, 657), while rose: Ore diu tentum dentis sedare dolorem (XXI, 797) and lemon balm: Ore retenta solet dentis sedare dolorem (L, 1661) were used to relieve toothache.

Various herbs and plants have been widely known in dermatology and cosmetology. Since ancient times, women used fruits, flowers, and leaves of plants to care for their skin, nails, and hair. For example, an ointment of wormwood ashes and wax was used as a hair dye: Denigrat crines cinis eius, si bene mixtus / Ceroto fuerit et eo sint saepe peruncti (III, 93–94), freckles were removed with crushed celery greens: Haeque superposita turpis lentigo fugatur (VIII, 361), and to improve the condition of the skin, honey and camomile masks were recommended: Squamas de vultibus aufert, / Si tritam apponas solam mellive iugatam (XIV, 570–571). Washing with warm decoction of pennyroyal was considered an effective cure for itching: Elixatura si quisquam saepe tepenti / Illius abluitur, pruritus non patientur (XVI, 663–664). As a local remedy for parasitosis caused by small mites *Sarcoptes scabiei*, patches of saltbush (*Atriplex*) were very efficient: Hocque superpositum scabros cito detrahit unguis (XXVIII, 951).

CONCLUSIONS

The plant world is not only a priceless treasure trove of nature, but also man's long-time friend. The use of plants in medicine has been sanctified by centuries of humankind's experience, for in nature's laboratory there is a cure for every disease. A poem by Macer Floridus, an 11th-century French scholar and physician, is a jewel of medieval phytotherapy, combining the antique legacy with the author's own experience. Healing plants and herbs from apothecary gardens, orchards, fields and meadows of Europe, as well as aromatic spices of the East were successfully used to treat and prevent diseases of the gastrointestinal tract, spleen, hepatobiliary system, respiratory organs, kidneys, urinary system.

The prescriptions collected by the French doctor promoted recovery from burns, wounds, injuries, gynecological pathologies, were also effective in dermatology and cosmetology, ophthalmology, and dentistry. The historical sources testify that medicinal plants have not lost their positions over the centuries; in fact, they continue to attract attention, since the preparations of herbal origin have many advantages over synthetic drugs due to their low toxicity and the possibility of prolonged use. Therefore, although modern pharmacy is rapidly progressing, it is necessary not to forget the valuable experience of using herbal remedies at various stages of the society's development.

REFERENCES

1. Floridus M. De viribus herbarum [http:// https://archive.org/details/deviribusherbaru00mace/page/54/mode/2up?ref=ol&view=theater](http://https://archive.org/details/deviribusherbaru00mace/page/54/mode/2up?ref=ol&view=theater) [date access 18.07.2021]
2. Eisenmann-Tappe I., Mayer J.G. Klostermedizin bei Erkrankungen des Verdauunstrakts. Heidelberg: Karl F Haug Verlag. 2021, 41p.
3. Bruce P. Flood Jr. Pliny and the Medieval Macer Medical Text. *Journal of the History of Medicine and Allied Sciences*. 1977;32(4):395–402.
4. Niedenthal T. "Wird erst einmal der Macer gedruckt sein...". Die Pflanzen des mittelalterlichen Lehrgedichtes "Macer Floridus" und ihre heutige Bedeutung. *Zeitschrift für Phytotherapie*. 2020;41(5):233–242. doi: 10.1055/a-1150-9364.
5. Mayer J.G. Klostermedizin – Heilwissen aus der Antike bis heute. *Zeitschrift für Phytotherapie*. 2019;40(6):254–258. doi:10.1055/a-1069-5248.
6. Voronov F.D. Poema «O svoystvah trav» kak istochnik po istorii meditsiny [Poem «On the Properties of Herbs» as a Source for the History of Medicine]. *Young Scientist. New tasks of modern medicine (II)*. 2013, 5p. (in Russian).
7. Stehlíková D. Magister docet utilitatem abrotani : Macerův pelyněk brotan (abrotanum) v bohemikálních komentářích z počátku 15. století. *Graeco-Latina Brunensia*. 2013; 18 (2):121-150.

ORCID and contributionship:

Marta J. Petryshyn: 0000-0003-4060-7440 ^{A, B, D, E}

Halina M. Zahajska: 0000-0003-1449-0269 ^{A, B, D}

Oxana V. Liubimova: 0000-0003-0413-309X ^{A, E, F}

Veronika H. Todoshchuk: 0000-0001-7293-6500 ^{B, F}

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CORRESPONDING AUTHOR

Oxana V. Liubimova

Yuriy Fedkovych Chernivtsi National University

2 Kotsyubynsky st., 58012 Chernivtsi, Ukraine

tel: +(038)095-440-51-45

e-mail: o.liubimova@chnu.edu.ua

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