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PETER OF SPAIN AND THE MEDICINAL USE OF PILGRIM SCALLOP SHELLS*

Abstract: Petrus Hispanus, also known as Peter of Spain (c. 1210-1277 CE), was a Portuguese physician who later became Pope John XXI. In his work *Thesaurus Pauperum* (*Treasure of the Poor*), which was one of the most popular books during the Middle Ages, he mentioned that “scallop shells carried by the pilgrims” could be used to manage menstrual overflow. He adapted this recipe from the Arabic physician Avicenna (c. 980–1037 CE). Interestingly, this leads us to consider the medicinal use of coral as well. Current scientific knowledge indicates that scallop shells are primarily composed of calcium carbonate, which can influence blood clotting. Additionally, the concave shape of scallop shells, which helped pilgrims drink during their journeys, evolved into a powerful symbol of their spiritual quest. Beyond their chemical properties, scallop shells represented aspects of spiritual well-being and beneficial healing forces, adding significant cultural meaning to their practical use.

Keywords: Coral, Calcium carbonate

Non MeSH: Peter of Spain, Scallop shells, Saint James Way

Introduction

Bivalve molluscs, such as clams, oysters, mussels, and scallops, belong to the class Bivalvia, of which there are more than 15,000 species. Each of these species presents a shell divided from front to back into left and right valves, connected at a hinge, protecting an inner organic body. [1] Lying at the intersection of the organic and inorganic, bivalve molluscs have a rich history intertwined with human fascination. According to the anthropologists Christian Räscher and Andreas Guhr:

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Bivalvia, composed of calcite, a mineral that forms entire mountains, are unique because a living organism forms their shells. These living organisms create a stone in which they live, protected and safe. When the soft mollusc dies, the flesh disappears, but the shell remains. Sometimes, they are preserved for millions of years, with solid rock forming around them. The bivalve fossilizes, but the embedded shell still bears witness to its life, providing crucial insights into the evolution of the earth and consciousness, a significance on par with any human life. [2 p8-9]

Bivalvia, with its deep-rooted association with the magical rituals of primitive societies, have a deep and rich cultural significance. Their concavity served as drinking vessels and water containers. [3 p72] In medieval times, the scallop shells (*Conchas de Vieira* in Portuguese and Spanish), which were abundant in the Portuguese and Galician Atlantic Coast (Fig. 1), became a symbol of the Way of Saint James, one of the most popular Christian medieval pilgrimages to Santiago de Compostela in Galicia, in the north of Spain.



*Fig. 1 – Scallop shells from the Portuguese Atlantic coast.
Author's collection. Photo credit: Ivo Miguel Barroso.*

Scallop shells, an unexpected medicinal ingredient, are highlighted in a recipe from the *Thesaurus Pauperum* (*Treasure of the Poor*), written by the Portuguese physician and Pope John XXI, Petrus Hispanus (Peter of Spain, c. 1210-1277 CE). This essay will explore this historical use. Recent studies in ethnomedicine have examined the medicinal properties of marine mollusc shells, providing new insights and updates to this ancient practice:

Remedies based on marine animals have been little studied and almost all relegated to the world of curiosities. However, many of these resources, which may seem unusual in our European context, have survived through time, and can inspire ethnopharmacological works. [4 p12-20]

The Way of Saint James

The foundation of the city Santiago de Compostela goes back to the legends about the journeys, death and miracles of the Holy Apostle Saint James (?-44 CE), who, in his wanderings in spreading the Christian faith, preached in Galicia, founded a church in Iria, but then returned to Jerusalem, where, by order of King Herod, he was beheaded, apparently, to please the Jews. [5 p19-20]

Legends, dating back to the 12th century, surround the return of Saint James' remains to Galicia, during which the scallop shell became his emblem and talisman. The disciples of the Apostle, accompanied by an angel of God, took charge of the holy body, which they bore by night to Joppa, where they found a miraculous ship ready prepared for them. They set sail with favourable breezes and calm sea until, on the seventh day, they came to the harbour of the river at Iria on the Galician coast:

We read of a miracle being accorded to them. When nearing the end of their journey, they beheld a man riding on the sea-shore, whose horse being restive, plunged into the sea, and then walked on the crests of the waves towards them. Suddenly, as they watched, both horse and rider sank beneath the water; but, after a brief space, they again appeared, covered over with shells. The shells were the convex bivalve, white inside. And the holy scallop shell thus became the emblem of St. James, being formed by skilful craftsmen as talismans, which should guard from all harm those who sought the Apostle's shrine. [5 p21]

The legends recounted in the *Liber Sancti Iacobi* (Book of St. James) from the *Codex Calixtinus* are the source of medieval veneration of St. James of Compostela whose original manuscript dates from 1139-1733. [6 p140] The scallop shells figure in the Banner (Fig. 2).



Fig. 2 – Banner of St. James (Pendón de Santiago) in *Liber Sancti Iacobi*, *Codex Calixtinus*, 14th century. Biblioteca General Histórica de Salamanca (Public domain).

The manuscript, “*The Miracles of St. James*” from the 14th century, also based on the *Codex Calixtinus*, recounts the miracles of St. James the Apostle, buried in the Cathedral of Santiago de Compostela. The miracle about the power of the Scallop of St. James healing a knight suffering from a massive swelling in his throat in the lands of Apulia in the year 1106, is of particular interest for healings mediated by the saints in Christianity:

In the year one hundred and six of the Lord's incarnation, a certain knight in Apulia felt his throat swell like a wineskin full of air. And, since he could find no remedy from any physician to cure him, he placed his unwavering trust in the Apostle Saint James, who told him that if he could find one of those shells that pilgrims bring from Santiago and touch his sore throat with it, he would heal immediately. Finding a shell in the house of a neighbour pilgrim and putting it on his throat, he was cured. Filled with gratitude and awe, he journeyed to the tomb of the Apostle in Galicia.

(Corriendo el año mil ciento seis de la encarnación del Señor, a cierto caballero en tierras de Apulia se le hinchó la garganta como un odre lleno de aire. Y como no hallase en ningún médico remedio que lo sanase, confiado en Santiago apóstol dijo que si pudiese hallar alguna concha de las que suelen llevar consigo los peregrinos que regresan de Santiago y tocarse con ella su garganta enferma, tendría remedio inmediato. Y habiéndola encontrado en casa de cierto peregrino vecino_ suyo, tocó su garganta y sanó, y marchó luego al sepulcro del Apóstol en Galicia.) [7 p353]

While the scallop shell is rich in Christian symbolism, this specific association with miraculous healing is unique among its legendary meanings.

Peter of Spain

Peter of Spain (Petrus Hispanus, c. 1210-1277 CE), the Portuguese Pope John XXI (Papacy 1276-1277 CE) (Fig. 3), was an outstanding medieval philosopher and “the only physician ever to sit on the chair of Saint Peter.” [8 p365] His work *Tesaurus Pauperum* (*Treasure of the Poor*), a practical recipes book written in simple language for the poor, brings together a set of easy and effective remedies for almost all illnesses. It was widely circulated until the 16th century. [8 p367] It is consigned to the “Father of the Poor”, God, who presides over the help of the doctor in the treatment of his patients, as can be read in Peter of Spain's Prologue to the work. [9 pVIII] However, the importance of experimentation is stressed, as well as the effectiveness of the recipes. [10]

Peter of Spain was a key figure in introducing Arabic medicine to Europe, where the use of minerals, precious stones, and animal concretions was particularly valued, although this practice was already partially documented in European literature as early as Theophrastus (c. 372- 287 BCE). [11]



Fig. 3 – Portrait of Peter of Spain. Art collections of the Veste Coburg. Public domain.

His therapeutic arsenal includes gold, alum, clay, marble powder, plaster, earths such as bolo Armenia and terra sigillata, as well as precious and semi-precious stones like topaz, sapphire, emerald, jasper, and lodestone, fossils like Jewish stones (identified with echinoid fossils), amber, jet (fossilized wood), and substances of animal origin like pearl, coral, Scallops of St. James, ivory shavings, deer horn (unicorn), spodium (calcined bones), oculi cancrorum (crab's eyes), calcareous concretions of the stomach (bezoars), enteroliths, concretions of the epiphysis, parotid gland, and others. [12]

A recipe borrowed from Avicenna (Abū ‘Alī al-Husatn ibn ‘Abd Allāh ibn Sīnā (980-1037), the “Prince of Physicians”, featured fish shells brought from Santiago de Compostela as the main ingredient for metrorrhagia (menstrual overflow). This one is the only instance in which Peter of Spain resorts to scallop shells in the Portuguese edition translated by the classicist Maria Helena da Rocha Pereira (1925-2017), which encompasses the manuscript 2235 from the Sainte-Geneviève Library and the manuscript Pal. Lat. 1259 from the Vatican Apostolic Library. Dating from the 14th century, these are the manuscripts that contain more recipes. [9 pVIII] In this edition, the recipe reads as follows:

[Avicenna]. Item. Fish shells, brought from Santiago, burned and given as a drink with sumac water, do much good.

([Auicenna]. Item conchule piscium, que apportantur de Sancto Jacobo, combuste et date potui cum aqua sumach, multum ualet.) [9 p276-277]

In a Spanish edition of the *Thesaurus Pauperum* (1598), printed without the author's name, with a 'Prologue to the author', it was explained that the book was commissioned by Pope John from a doctor named Juliano, a very learned and experienced physician. [13 p3] (Fig. 4). In this publication, the recipe is more detailed and precise, referring to "the shells that the pilgrims bring from Santiago" (Fig. 4a):

Item advises Master Avicenna to take the shells brought by the pilgrims from Santiago, grind them into powder, and administer them as a drink, as it will promptly stop the bleeding. However, make them [the shells] work with sumac water.

(Ytem dize maestre Auicena que tomes as conchas que traē los romeros de Santiago, y hazlas polvos y dalos a beber, y luego estancara la fangre. Empero destempla os cō el agua del çumaque.) [13 p60]

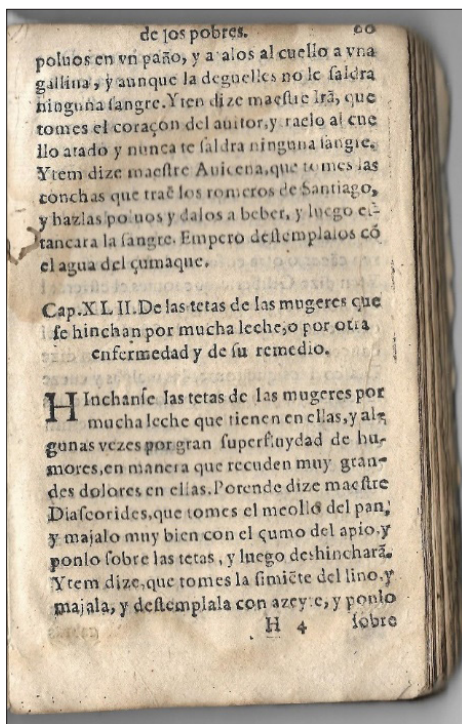
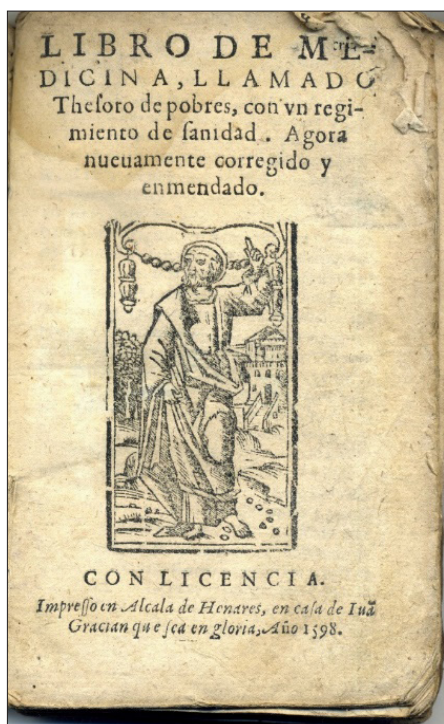


Fig. 4 – Libro de Medicina, llamado *Thesoro de los pobres*, con vn regimiento de sanidad (1598). Author's collection.

Fig. 4a- p. 60.

Scallop shells, Avicenna, Peter of Spain

When examining Peter of Spain's recipe, what struck us was the attribution of the prescription for scallop shells, brought from Santiago de Compostela, to Avicenna, a Persian author. We diligently searched the recipe in Avicenna's volume on *Natural Pharmaceutics* but found no entry for scallop shells.

In an entry dedicated to sea shells, Avicenna lists the properties and indications of sea shells for extracting arrows, cosmetic use, relieving swellings, managing pimples, alleviating joint pain, and whitening teeth. There is no mention of haemostatic properties or menstrual overflow. The shell with the pulp and the pulp alone are employed for other purposes. [14 p989-991] Conch shells are listed with the following healing properties:

"The conch shell reduces hotness of the blood." [14 p108]

Could this be Peter of Spain's source? Instead of scallop shells and the "hotness of the blood," could the haemostatic properties be interpreted as the source? Avicenna prescribed burnt conch shells for the visual organs and for treating ulcers of the eye, [13 p308] not as haemostatic.

Coral as haemostatic

Peter of Spain was the 75th archbishop of the city of Braga, in the north of Portugal, not far from Santiago de Compostela. [15 p152] He would be familiar with the pilgrimages, the scallop shells and St. James miracles. In another recipe, he indicates red coral as haemostatic for menstrual overflow:

Drinking coral plant retains menstruation. [9 p277]

Coral, a calcareous skeleton secreted by marine animals, was highly valued for its beauty and its versatility. It served as an ornament and an amulet, but it was also a key ingredient in life elixirs, love potions and all-healing potions during the Middle Ages. The precious red coral was particularly valued for these purposes. [2 p103] Coral (Fig. 5) was held as a marine plant that hardened since Theophrastus:

Coral, which is like a stone, is red in colour and rounded like a 33 root, and it grows in the sea. And in a way the petrified Indian reed is not very different in its nature from coral. But this is a subject for another inquiry. [11 p53]

Coral (red, black and white) is listed in Avicenna's treatise, as a well-known drug with the following healing properties, as haemostatic although not mentioned to manage metrorrhagia:

Coral constricts the tissues or canals of the body. It stops profuse bleeding. It has a strong drying property. This property is stronger than its potency to constrict the tissues or canals of the body. [14 p313-15]



*Fig. 5 - Coral branch mounted on a black wooden stand. 17th century.
Credit: Lisbon Museum of Pharmacy and Health.*

Coral was widely prescribed by Peter of Spain for several conditions. [10] However, it is worth to note that scallop shells, sea shells in general, and corals share the same chemical composition. Bivalves and coral are mainly composed of calcite, [2 p8-9, 102] which was medicinally employed as calcium carbonate to manage several conditions, including stopping bleeding since calcium is an important co-factor in blood clotting. [16 p49] Whether Peter of Spain hinted at similar haemostatic properties of coral and scallop shells is a question for which we have no answer.

During the Middle Ages, coral was also charged with spiritual symbolism, such as the St. James shell. Coral branches resembling a cross were charged with Christian symbolism to ward off the devil. In the French translation, *Le Jardin de Santé (Hortus Sanitatis)*, attributed to Johannes de Cuba (1430-1504?), a coral-like natural representation resembling a cross is depicted on a blue background as a marine plant. [17 f140] (Fig. 6). Crosses and other precious liturgical and devotional objects are frequently made of coral or adorned with it, like a reliquary cross from Italy, dating from the 14th century. [18] (Fig. 6a).

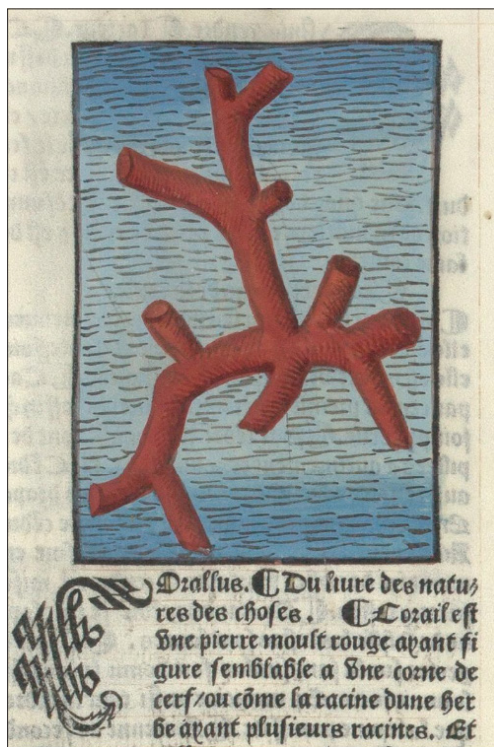


Fig. 6 – Coral in the shape of a cross. In *Le Jardin de Santé*.
French translation by Antoine Vérard (1450?-1514?), fol. 140.

Fig. 6a – Reliquary cross. Italy. 14th century. Materials: T
ranslucent enamel, silver, silver-gilt, coral, glass, rock crystal, gold leaf.
Object number: 17.190.497. New York. Metropolitan Museum of Art.

In the 14th century, Rosarius, a French Dominican friar from Soissonnais, but of whom no further data are available, after listing the benefits and protections of coral, compares it to the Virgin Mary as the tree of Life, in a manuscript from after 1328, *Poème moralisé sur les propriétés des choses*, from the National Library of France (B.N.F. fr.12483):

To the coral, Mary (I) compare,
Who was the tree of life...
(Au coral Marie (je) compaire,
Qui fu fust el arbre de vie...). [19 p457]

Rosarius' association of the coral to the Virgin Mary, Mother of Jesus, as the Tree of Life has possibly echoed in religious artworks such as the Red Coral Reliquary of Queen Saint Elizabeth of Portugal (1271-1336), a masterpiece of Portuguese goldsmithing, which holds significant historical value. Crafted by an unknown author in the 14th century, it

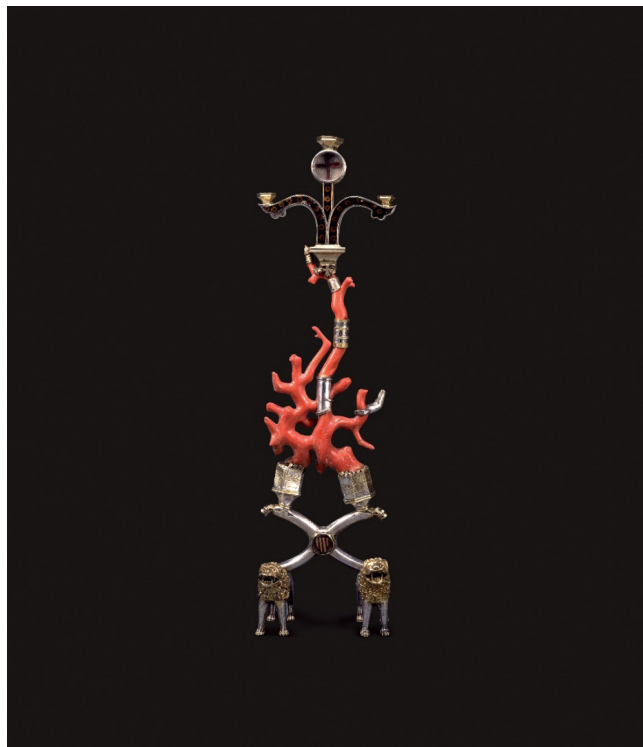


Fig. 7 – Red Coral Reliquary of Queen Saint Elizabeth of Aragon (1271-1336). (MNM 6036;07) • Material: Coral, Gold silver and enamels. Unknown author. 14th century. PortPhoto credit: DGPC/ADF - Museu Nacional de Machado de Castro - Museu e Monumentos de Portugal, E.P.E.

is an elaborate construction that features the shield of Aragon in enamel, symbolizing the Royal House of Queen Saint Elizabeth of Portugal. The reliquary, supported by silver pieces, is designed to resemble to coral tree, with three branches that bear a striking resemblance to tree crosses. [20] (Fig. 7).

Sumac water

Sumac, the other ingredient, is listed in an entry of Avicenna's treatise, with haemostatic properties:

(...) Sumac stops bleeding. Some physicians are of the view that even by suspending it around the neck, it acts as an anti-haemorrhagic drug. (...) Sumac causes constipation, stops excessive menstrual flow and profuse bleeding. [14 p1057-1060]

Sumac water, made from Sumac berries, is the other ingredient. Sumac berries are the fruits of the sumac (or Sumach) tree (Fig. 8), *Rhus coriaria* L. and related species like

Rhus glabra L. They are good for digestive problems as stomachics and as adstringents, especially for oral cavity and pharynx, often as a gargle. [21 p541]

Sumac berries are currently known to be rich in antioxidant compounds, which include tannins, anthocyanins and flavonoids, which stand as the primary reason for their broad therapeutical potential. [22]

The use of sumac water in Peter of Spain's recipe establishes without any doubt the origin of part of this recipe to Avicenna's treatise.



Fig. 8 – *Rhus Sumac*. In Blackwell, 1737, p. 541.

Conclusion

The recipe for Scallop shells borrowed from Avicenna raises questions to which we have no answers. However, it presents fascinating challenges to the modern scholarship:

- 1 – We do not know if Peter of Spain had access to Avicenna's manuscripts.
- 2 – Scallop shells do not figure as medicines in the modern English translation of Avicenna's treatise.
- 3 – Peter of Spain and Avicenna prescribed red coral for menstrual overflow.
- 4 – The main chemical component of scallop shells (and shells, in general) and coral is calcium carbonate, an important co-factor of the coagulation process.
- 5 – Considering the similar chemical composition of scallop shells and coral, it is plausible that they could produce similar therapeutic effects, which science could not prove at the time.
- 6 – The only support for the origin of Peter of Spain's recipe in Avicenna's treatise is the second ingredient, sumac water, which would have synergistic antihemorrhagic effects in managing menstrual overflow.

Would Peter of Spain be aware of this similarity from his empirical experience? It seems reasonable. The revolutionary advances in chemistry made by Antoine Lavoisier (1743–1794) allowed physicians to understand the exact properties of the medicines they prescribed. Starting in the 18th century, not only doctors, but also pharmacists gained the ability to evaluate the chemical composition and effectiveness of drugs. At the same time, the development of modern anatomy, physiology, pathological anatomy, and other medical sciences gradually replaced earlier, unscientific medical and therapeutic practices. This progress led to many expensive but ineffective medicines being discontinued and preserved only in medical and pharmaceutical museums. [23,24]

Despite the religiosity surrounding the scallop shells, pilgrimages to Santiago de Compostela and the figure of Peter of Spain himself, the recipe does not directly contain anything that indicates healing by religious or spiritual means. The same applies to the coral's recipe. It is possible that the healing potential of the scallop shells carried by pilgrims of the St James Way, which were themselves considered to work miracles, underlined the choice based on their beneficial value.

While the origin of Peter of Spain's recipes remains a mystery, as we do not have direct access to his sources, there is much to be clarified and discovered. In his medical works and, specifically, in this prescription, we may conclude that he gave primacy to experience, reason and, possibly, his clinical sense since:

Reason seeks to safeguard what has been acquired through experience. [25 p22]

Martin von Fulda, the author of a chronicle detailing the popes and emperors up to 1379 (printed in Eccard, Corp. I, 1642), was referenced by Johann Tobias Köhler

between 1760 and 1768. Köhler compiled the known information on Peter of Spain in 1760, mentioning him in the following terms:

He was a great physician, but in other sciences, he was a generalist.
(Hic fuit magnus medicus in allis autem Scientiis generalis). [26 p12]

Therefore, Peter of Spain remains a challenging and fascinating figure in the 21st century. Heinrich Schipperges (1918-2003), philosopher, psychologist, physician, Arabist, a specialist in Arabic Studies, and a great enthusiast of Peter of Spain, stated the following:

What increasingly captivates us about the life and work of Peter of Spain is not just his originality and mastery in constructing a natural philosophical architecture within medieval scholasticism. It is the sheer elegance with which he assimilated the diverse currents of tradition from both the West and the East and then interwove and dissolve them with his dialectic. This process, repeated with grace, gradually made these traditions transparent, offering us a new level of understanding and enlightenment in a truly dialogic manner. [25 p125]

Rezime

Petrus Hispanus, takođe poznat kao Petar Španski (oko 1210-1277), bio je portugalski lekar koji je kasnije postao papa Jovan XXI. U svom delu „Thesaurus Pauperum“ (Blago siromašnih), koje je bila jedna od najpopularnijih knjiga tokom srednjeg veka, pomenuo je da se „morski češljevi koje nose hodočasnici“ mogu koristiti za upravljanje menstrualnim izlivom. Ovaj recept je adaptirao od arapskog lekara Avicene (oko 980–1037. godine nove ere). Zanimljivo je da nas ovo navodi da razmotrimo i medicinsku upotrebu koral. Trenutna naučna saznanja ukazuju na to da su morski češljevi prvenstveno sastavljeni od kalcijum karbonata, koji može uticati na zgrušavanje krvi. Pored toga, konkavni oblik školjki, koji je pomagao hodočasnici da piju tokom svojih putovanja, evoluirao je u moćan simbol njihove duhovne potrage. Pored svojih hemijskih svojstava, morski češljevi predstavljali su aspekte duhovnog blagostanja i korisnih isceliteljskih sila, dodajući značajno kulturno značenje njihovoj praktičnoj upotrebi.

Ključne reči: koral, kalcijum karbonat, Petar od Španije, morski češljevi, put Svetog Jakova

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