CME LIVE OPEN ACCESS

Journal of Cancer Research

Mini Review Article ISSN: 2578-3726

Alexinaris Elixir a Hidden Wonder of the Amaranth Mountains Lesser Caucasus

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Received: 2025 Nov 10 **Accepted:** 2025 Nov 29 **Published:** 2025 Dec 09

Keywords: Alexinaris, Primula Juliae, Caucasian Amaranth, Biochemical, Iberian OaOk

1. Introduction: Plants, Myth, and Genes

The Lesser Caucasus range—often poetically called the "Amaranth Mountains" can be regarded as one of the world's oldest "laboratories," both biologically and culturally–mythologically. In modern biogeography, the Caucasus ecoregion is recognized as a global biodiversity hotspot, especially rich in endemic flora and the associated ethnobotanical knowledge.

The legend of ALEXINARIS ELIXIR, born in the shadow of these mountains an elixir forgotten by Georgian traditional medicine yet rediscovered by modern pharmacology connects three spheres:

- plant biochemistry (phytochemistry),
- ancient healing practices, and
- philosophical mystical quests for a "drink of immortality."

From the scientific point of view, the narrative is built around three main endemic sources:

- **Primula Juliae** – Julia's primrose, a rare and legally protected endemic primula of the Lesser Caucasus, with natural habitats precisely in western and northern Georgia.
- **Caucasian Amaranth** – local forms of various *Amaranthus* species, whose grains and leaves contain high levels of phenolic compounds, including kaempferol glycosides.
- **Iberian Oak (Quercus cf. Iberica)** – a representative of the Caucasian oak group, rich in tannins and flavonoids (quercetin, kaempferol, and others).
- **European Goldenrod (*Solidago Virgaurea* L.)** – a perennial Asteraceae herb (including the Caucasian subspecies *S. virgaurea* subsp. *caucasica*) native to the Caucasus highlands, whose aerial parts are a rich source of flavonoids (mainly quercetin- and kaempferol-derived glycosides), phenolic acids, and triterpene saponins, traditionally used as a diuretic and anti-inflammatory remedy in urinary-tract and wound-healing disorders.

The biochemical "signature" of these plants—anthocyanins (cyanidin 3 glucoside, delphinidin 3 glucoside), flavonols (kaempferol, kaempferide), and hormonal regulators (auxin/IAA, ABA)—forms the basis for the hypothesis that ALEXINARIS ELIXIR may be a natural polyphenolic hormonal cocktail capable of promoting regeneration, dampening inflammation, and restoring metabolic homeostasis at the cellular level.

The violet-purple flowers of Primula juliae serve as a major natural source of anthocyanins—unique anthocyanin compounds that are found exclusively in this endemic species of Georgia

Figure 1

Solidago virgaurea L. — one of the principal natural sources of kaempferol and its glycosylated derivatives, the kaempferides, widely recognized for their potent antioxidant, anti-inflammatory, and nephroprotective properties.

Figure 2

2. The Nature of the Plants and Their Biochemical "Personality"

2.1. Primula juliae – the Caucasian "First Color"

Primula juliae is a small, semi evergreen primrose that grows on moist mountain slopes in the Caucasus. Species of the genus *Primula* are generally rich in saponins, flavonoids, and essential oils. These components have been used in many European and Asian phytotherapeutic systems as expectorants and mild sedatives with anti inflammatory properties. In the pigment complex, **anthocyanins** play a special role—they give primrose blossoms their deep purple magenta hues. Anthocyanins, particularly **cyanidin 3 O glucoside (C3G)**, are potent antioxidants; they suppress NF κB–driven inflammatory responses, protect the intestinal barrier, and exhibit antitumor and neuroprotective activity in various models. Thus, the Caucasian primrose can be imagined as a "first color" plant—one of the earliest to "wake up" the ecosystem at the beginning of spring as the snow melts, symbolically announcing the renewal of the cycle of life.

2.2. Amaranth – "Unfading, Never Withering"

Botanically, amaranth is one of the oldest grain crops, rich in protein, amino acids, and polyphenols. Modern analyses show that amaranth seeds and sprouts contain phenolic acids and flavonoids, including kaempferol glycosides. Linguists remind us that "amaranth" comes from the Greek **amarantos**- "unfading, undying." This resonates with a botanical fact: amaranth flowers and calyces keep their color and firmness for a long time, which is why the plant was perceived as a symbol of immortality. The polyphenolic profile of amaranth grains (vanillic acid, kaempferol rutinoside, and others) is linked to antioxidant, anti inflammatory, and metabolic benefits. In contemporary research, amaranth is discussed as an important component of functional foods.

2.3. Iberian Oak – "Cradle" of Tannins and Flavonoids

Oaks of the genus *Quercus*—including Caucasian/Iberian forms—are rich in tannins, flavonoids (quercetin, kaempferol and their glycosides), and phenolic acids. These constituents exhibit antioxidant, anti inflammatory, antimicrobial, and antitumor effects. In Georgian folk medicine, oak bark and leaves are used as astringent, antiseptic, and antidiarrheal remedies, particularly for intestinal and stomach disorders, bleeding, and inflammatory skin conditions.

2.4. Phytohormones: IAA (Auxin) and ABA as "Weighing Scales"

Plant growth and development are governed primarily by two hormones that are symbolically important in the concept

of ALEXINARIS ELIXIR:

• **Indole 3 Acetic Acid (IAA)** – the main natural **auxin**, which regulates cell division, elongation, and differentiation, and thus embryogenesis, organogenesis, root formation, and regeneration.

• **Abscisic Acid (ABA)** – a phytohormone that controls the plant's response to stress (drought, cold, salinity) and participates in seed dormancy, stomatal closure, and the "pause" of growth and development when environmental conditions are harsh.

Interestingly, in recent years ABA has been identified not only as a plant hormone but also as a signaling molecule in mammals; it participates in the regulation of glucose homeostasis, increases glucose uptake in muscle and adipose tissue, and can be considered a metabolic hormone with mechanisms different from insulin. Even in low concentrations, such phytohormones in a plant based mixture may influence not only the self regeneration of plant tissues but also subtly modulate human endocrine and metabolic systems. This is still an early research area, but it gives the ALEXINARIS ELIXIR concept an additional "depth."

3. Flavonoids and Anthocyanins – The Pharmacological Quartet

Across all three endemic sources—primrose, amaranth, and oak—the central active compounds are flavonoids and anthocyanins. This is where the "classical quartet" of ALEXINARIS ELIXIR emerges:

1. Cyanidin 3 O glucoside (C3G) – a powerful antioxidant that reduces ROS and RNS levels, modulates NF κB–dependent inflammatory signaling, inhibits tumor growth in various models, triggers apoptosis, and suppresses angiogenesis.

2. Delphinidin 3 O glucoside (D3G) – exhibits antioxidant, anti inflammatory, and antitumor effects, suppresses NF κB and MAPK, lowers the production of pro inflammatory cytokines, and in animal models is associated with increased lifespan and an extended "healthspan."

3. Kaempferol – a flavonol that systematic reviews link convincingly to anticancer, anti inflammatory, neuroprotective, and metabolic effects via modulation of multiple signaling pathways (PI3K/Akt, MAPK, NF κB, JAK/STAT).

4. Kaempferide – an O methylated derivative of kaempferol. Experimental studies assign it anti inflammatory, antioxidant, anticancer, and anti adipogenic activity.

These four compounds are united not only by their chemical kinship but also by **synergistic activity**:

• They "regenerate" each other's antioxidant capacity (a redox cycle).

• They dampen inflammation through multiple checkpoints (NF κB, NLRP3, iNOS, COX 2).

• They attack cancer cells via many routes (apoptosis, cell cycle arrest, blockade of angiogenesis).

• They modulate immune function—guiding macrophage polarization, balancing T cell responses, and more.

Fundamentally, the "core" of ALEXINARIS ELIXIR is therefore a **polyphenolic symphony** that, together with plant hormones, can generate regenerative, antineoplastic, and homeostasis restoring waves across cellular networks.

4. Does the Elixir Bring Ancient Legends Back to Life

4.1. The Sumerian "Plant of Heartbeat" and Gilgamesh

In the Sumerian Babylonian *Epic of Gilgamesh*, the hero searches for a powerful underwater plant that can restore youth to an old person—the text calls it the "plant that makes the heart beat again." Gilgamesh finds the plant but a snake steals it, which many interpreters see as an allegory: life can be extended, but absolute immortality remains beyond human reach. The mythic narrative of ALEXINARIS ELIXIR is connected to this Sumerian story—the idea that Sumerian knowledge migrated toward the Caucasus and later settled in the secret gardens of Medea in Colchis. There is no direct historical evidence for a concrete elixir of this kind. However, archaeological and textual data show that Sumerian, Mesopotamian, Egyptian, and Colchian medical practices were woven into a dense network of mutual influences.

Main Image

ALEXINARIS ELIXIR represents a curated blend of anthocyanins and flavonoids derived from botanicals traditionally associated with the legendary Garden of Medea in ancient Colchis. The conceptual foundation of the formula is inspired by textual traditions attributed to the Library of Alexandria. The name 'ColchiMedea' reflects this heritage. Although the Library of Alexandria was destroyed centuries after the Classical period, leaving many works irrevocably lost, foundational medical knowledge that resonates with this tradition survives through earlier and later authors. These include Euriphon and Heracleides of Kos physicians of the generation preceding Hippocrates (5th century BCE)—and, much later, Avicenna (Ibn Sina, 980–1037 CE), whose Canon of Medicine preserved and synthesized Greco-Arabic medical science. Thus, the conceptual reconstruction of this elixir draws upon multiple historical layers: Colchian phytotherapeutic mythology, early Greek medical thought, Alexandrian textual inheritance, and the medieval transmission of ancient medical wisdom."

4.2. Medea, Colchis, and the Power of Caucasian Plants

In classical sources—and in current scholarship—Medea of Colchis is described as a figure who combined skills of "cosmetics, hematology, surgery, and toxicology," and whose knowledge had a notable impact on subsequent medical traditions. It is often mentioned that Medea's garden contained **Colchicum**, the plant from which **colchicine** was later isolated—one of the oldest and still active antis inflammatory and antiproliferative drugs. This example—where a myth about a "magical plant" ultimately became a chemically defined drug—should inspire modern science when dealing with hypothetical elixirs like ALEXINARIS ELIXIR. The mythological narrative ought to be viewed not as mere fantasy but as a guide for historical ethnobotanical detective work.

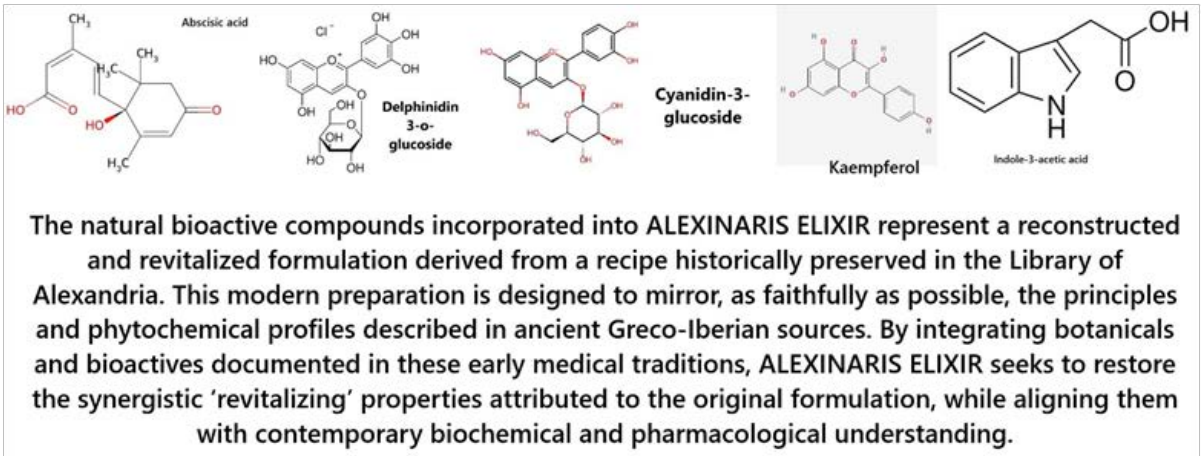

Figure 3

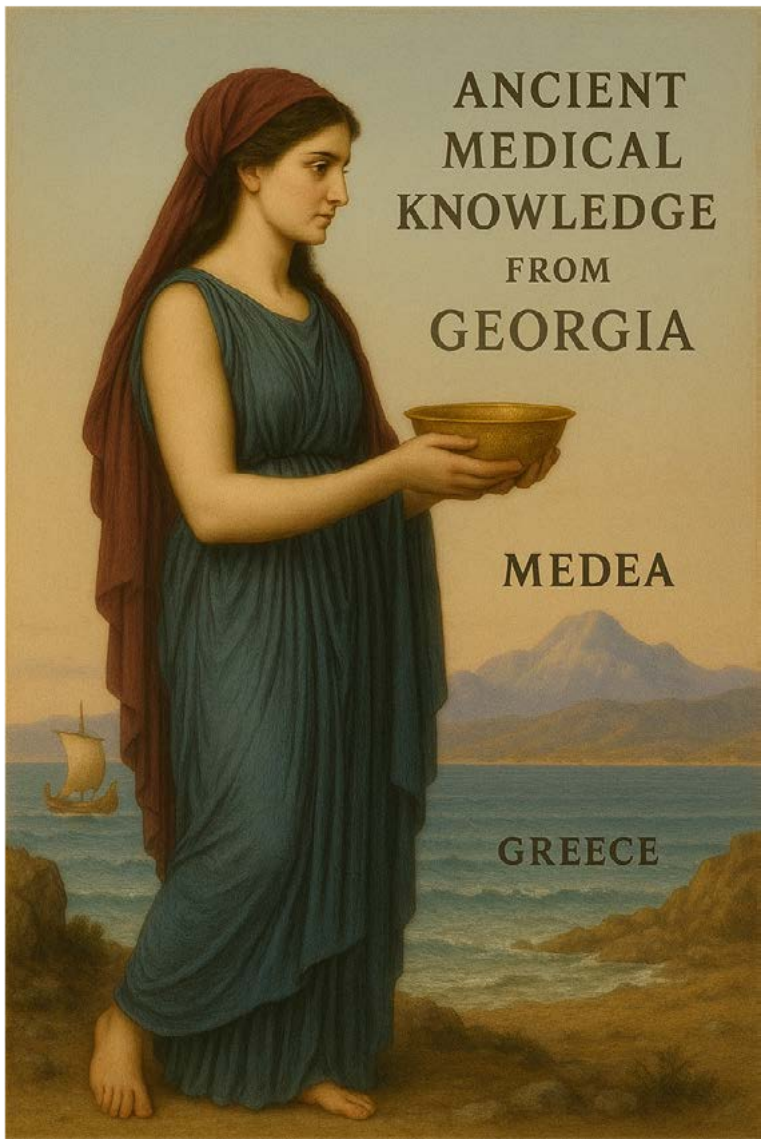

Figure 4: Medea – The Transmission of Ancient Medical Knowledge from Georgia to Greece

According to the myth, in the late second and early first millennium BCE, on the southeastern coast of the Black Sea—within the territory of present-day western Georgia—there existed a wealthy and powerful kingdom known as Colchis. It was to this land that the Argonauts, led by Jason, sailed in their quest to obtain the Golden Fleece, a symbol of authority, vitality, and divine favor. Medea, the daughter of King Aeëtes of Colchis, is portrayed in Greek tradition as a master healer—a woman deeply knowledgeable in the properties of plants, antidotes, and potent botanical preparations. In many classical accounts, Medea is not merely a sorceress, but a bearer of advanced medicinal and phytotherapeutic wisdom rooted in the ancient Georgian (Colchian) tradition. One enduring interpretation of the myth suggests that when Medea departed Colchis with Jason, she carried with her not only the Golden Fleece, but also the sophisticated medical knowledge of her homeland—expertise in herbs, poisons, antidotes, and life-preserving elixirs. Through Medea's story, Colchis emerges as one of the earliest cultural bridges connecting Georgia's ancient botanical-medical heritage with the developing medical traditions of Greece.

4.3. From the Library of Alexandria to the Gelati Academy

The Library of Alexandria became a symbol of what can happen to knowledge when it collides with political and military storms. Although the story of its destruction in a single dramatic event is more legend than documented fact, modern historiography agrees that its slow, staged loss represented a major cultural catastrophe. Against this background it is especially interesting that medieval Georgian monasteries—among them the **Gelati Academy**—were often referred to as a "new Athens" and a "second Jerusalem," where both Greco Roman and Eastern medical texts were translated and discussed. This tradition created an institutional "bridge" between ancient medicine and modern biology—the very bridge on which the study of ALEXINARIS ELIXIR naturally stands: integrating old manuscripts, ethnobotanical knowledge, and molecular methods.

5. Georgian Medicine, Linguistics, and "Genetic Memory"

Historical sources suggest that Georgian medicine is among the oldest medical traditions. More than 500 medical manuscripts contain traces of Sumerian, Chinese, Indian, Arabic, and especially Greco Roman medicine. For centuries,

Georgia—as the center of the Caucasus—served as a "transit hub" for plant exchange and medicinal knowledge. In parallel, the **Georgian language**—part of the independent **Kartvelian** family in the South Caucasus—is not genetically related to any other known language families, underlining the uniqueness of Georgian culture. In this context, the mythic origin of ALEXINARIS ELIXIR—from Georgian traditional medicine and connected to Sumerian Egyptian "immortality" myths—can be read as a **cultural metaphor** for how a nation carries its "genetic memory" through texts, rituals, plant cultivation, and healing recipes.

6. Philosophy, Mythology, and Biology: Ouroboros and Apoptosis

One of humanity's oldest symbols, **Ouroboros**, is a serpent with its tail in its mouth. It is usually interpreted as a sign of the **eternal cycle of life, death, and renewal**. In biology, the concept closest to this symbol is **apoptosis**—genetically programmed cell death—described by Kerr, Wyllie, and Currie in 1972 as a process "complementary to mitosis," an essential counterpart in the regulation of life. If we look at these two—Ouroboros and apoptosis—through the lens of ALEXINARIS ELIXIR, we get an intriguing picture:

- A cell that **retains** its regenerative capacity yet also **preserves its apoptotic program** can become a nucleus of "healthy ambience," where regeneration and self destruction are in dynamic balance.
- A cancer cell that "forgets" apoptosis becomes a serpent expelled from the Ouroboros cycle—constantly growing yet unregulated.
- Polyphenols and phytohormones that restore apoptotic pathways in cancer cells (for example, D3G suppressing NF κB and inflammatory cytokines, or kaempferol inhibiting PI3K/Akt) can be seen as attempts to "bring Ouroboros back."

In this sense, the scientific–philosophical role of ALEXINARIS ELIXIR might be defined as an effort to restore the **cycle of death and life**—apoptosis and regeneration—to their natural equilibrium.

7. Scientific–Practical Potential

7.1. Synergy of Polyphenols and Modern Pharmacology

For centuries, plant mixtures were used **in combination**, not as isolated compounds. Modern meta analyses in animal models confirm that polyphenol combinations—especially flavonoids—often show synergistic antitumor effects. C3G and D3G dampen the inflammatory baseline, reduce TNF α, IL 1β, and IL 6, and improve endothelial function. Kaempferol and kaempferide induce apoptosis and inhibit metastasis in many cancer cell lines. In particular, **nanotechnological formulations** of these compounds—liposomes, nanoparticles, Nano emulsions—are being actively developed to improve bioavailability and tissue targeting. Within this framework, ALEXINARIS ELIXIR can be conceived as a **translational platform**: a traditional plant composition whose chemical profile needs to be mapped in detail, while the pharmacology of its individual components is already well documented.

7.2. ABA, Metabolic Health, and a "Renewed Heart"

The discovery of ABA as a hormone in mammals, capable of improving glucose homeostasis, activating AMPK, and increasing energy expenditure, forms an intriguing bridge between plant and human endocrine systems. If the constituents of ALEXINARIS ELIXIR—primrose, amaranth, and oak—indeed contain meaningful amounts of ABA, then the elixir could simultaneously:

- suppress inflammation (via polyphenols), and
- improve the metabolic profile (via ABA and other bioactive molecules).

This, in turn, promotes **endothelial health**, reduces the risk of atherosclerosis, and may positively affect cerebral blood flow and neuronal networks—that same "biological clock" which underlies human conscious experience of time [1-37].

7.3. Individualized (Personalized) Medicine

Modern medicine is moving decisively toward **personalized therapy**, based on integrating genome, epigenome, microbiome, and lifestyle data. Complex plant formulations like ALEXINARIS ELIXIR fit naturally within this framework because:

- They can be individually dosed according to a patient's polymorphisms and metabolic status.
- They can be combined rationally with specific targeted drugs (e.g., PI3K inhibitors, immune checkpoint inhibitors) to maintain or even increase the therapeutic index.
- The profile of the microbiome can help predict which patients will respond better to a polyphenol cocktail, since the polyphenol–gut microbiota–human axis is one of the main channels of ALEXINARIS ELIXIR's potential influence.

8. Conclusion – The "Legendary" Elixir as a Scientific Task

Although we currently lack direct evidence for the historical recipe of **ALEXINARIS ELIXIR**, its concept—as a polyphenolic and phytohormonal complex derived from endemic plants of the Lesser Caucasus—is firmly anchored in:

- contemporary pharmacological knowledge about C3G, D3G, kaempferol, and kaempferide,
- and the many century tradition of Georgian medicine, which represents a synthesis of Sumerian, Greek, Indian, and Arabic influences.

The mythic thread—the plant of Gilgamesh, Medea's garden, the "unfading" amaranth flower, the eternal circle of Ouroboros—gives all of this "semantic gravity." It reminds us that the human desire to prolong life is simultaneously a biological, psychological, and cultural phenomenon. If in the future biochemistry, genomics, ethnobotany, and history work together on concepts like ALEXINARIS ELIXIR, we may find that the "drink of immortality" is not a single bottle of magical fluid but a **systemic approach**—rich in flavonoids, phytohormones, and a way of thinking that respects both ancient texts and modern science. On this path, the Lesser Caucasus, the Amaranth Mountains, and Georgian traditional medicine may become not only sources of national pride but also key points in a global scientific quest.

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