

Article Review

Interpretive Conclusions from the Biochemical Alignment of Human Breast Milk and Hemp Seed + Raw Cannabis Leaf/Flower Across Endocannabinoid System–Relevant Nutritional Axes

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ABSTRACT

In a preceding companion review [1], a systematic side-by-side comparison across 20 nutritional axes demonstrated a striking biochemical alignment between human breast milk and *Cannabis sativa* L. (hemp seed combined with raw leaf/flower) regarding endocannabinoid system (ECS) precursors, cofactors, and lipid architectures, without drawing interpretive conclusions. This commentary presents the definitive interpretive conclusions derived from that aligned dataset. We propose two distinct, non-mutually exclusive frameworks: First, that the observed cross-axis alignment defines the foundational "Gold Standard" protective nutrient [2] profile required for optimizing human ECS tone and signaling fidelity. Second, that the specific inverted fatty acid and phytocannabinoid precursor ratios present in the plant matrix represent an evolutionary adaptation shifted toward mature metabolic demands—functioning effectively as an "Adult Formula Breastmilk." Finally, we discuss immediate next steps for empirical validation, emphasizing that the reclassification of *Cannabis* to Schedule III removes long-standing institutional barriers, clearing the path for targeted clinical trials and metabolomic validation by universities and research groups.

Keywords: *Cannabis sativa*; human breast milk; Endocannabinoid System; ECS Nutrition; Systems Biology; Adult Formula Breastmilk; Metabolic Optimization; Gold standard nutrition profile; phytocannabinoid precursors

1. Introduction

The Fundamental Biological Axiom: Biology 101

Every known biological system operates within a specific nutrient set that supplies its precursors, cofactors, building blocks, and regulatory compounds. Without that dedicated nutritional matrix, the system cannot maintain optimal tone, signaling fidelity, or homeostasis. Classic examples include the thyroid axis (iodine, selenium, tyrosine), the nitric oxide pathway

(arginine, tetrahydrobiopterin), and neurotransmitter systems (specific amino acids, B vitamins, minerals). Before this work, the endocannabinoid system was largely treated differently—primarily through the lens of receptors, endogenous ligands, and exogenous modulators—with nutrition mentioned only in passing. By using human breast milk (nature’s only complete, evolutionarily validated ECS-supportive package, which literally delivers endocannabinoids such as 2-AG along with optimized precursors and cofactors) as the reference point and rigorously aligning hemp seed + raw Cannabis sativa leaf/flower against it, we supply the first systematic definition of an ECS-specific nutrient set for humans.

Conclusion 1: Gold Standard Nutrient Set for the ECS

Breast milk is widely regarded as the gold standard for infant human nutrition due to its comprehensive and evolutionarily optimized biochemical profile. The only time in human life where the ECS has nutritional support (fully fed) is in lactation stage of life. The observed alignments across all 20 ECS-relevant nutritional axes—spanning lipid architecture, essential fatty acid ratios (including balanced omega-6:3 and GLA pathways), endocannabinoid precursors and congeners, enzymatic cofactors, complete protein profiles (with notable arginine content), anti-inflammatory compounds, membrane lipids, prebiotic fiber aspects, and others—suggest that the combined profile of hemp seed + raw cannabis leaf/flower represents a closely matching nutrient set. We therefore propose that this specific plant-based alignment constitutes a candidate “gold standard” protective nutrient [2] profile optimized for supporting the endocannabinoid system (ECS) in humans. The alignment is not coincidental: breast milk is what a complete, evolutionarily validated fortification profile for the developing ECS looks like.

Conclusion 2: Adult Formula Breastmilk

Several of the documented alignments include inverted or adult-shifted ratios relative to typical breast milk composition (e.g., certain omega-6:omega-3 balances, concentrations or forms of phytocannabinoid precursors and acidic forms, or cofactor distributions that reflect mature metabolic demands). These shifts point toward a profile that may be particularly well-suited for supporting the adult endocannabinoid system rather than the rapidly developing infant system. We therefore propose that hemp seed combined with raw cannabis leaf/flower functions as a kind of “Adult Formula Breastmilk”—a tailored nutritional matrix for ongoing ECS maintenance, tone regulation, and resilience in mature physiology. Just as adult nutritional needs differ from those of infants (adjusted “fortification levels” for different life stages), these inverted ratios represent the shifted matrix suited for adult ECS demands.

Biological Transition: Infant to Adult Values Inverted

Both protein architecture and anti-inflammatory potency are intentionally inverted between breast milk and whole-plant hemp. The inversion is directionally consistent with the biological transition from infant (growth program, protected environment, low inflammatory load) to adult (homeostasis program, full environmental exposure, higher inflammatory burden). This inversion pattern constitutes evidence that Cannabis sativa L. whole plant is not merely nutritionally similar to breast milk, but is the adult-phase complement of the same evolutionary nutritional program.

Requirement of Vitamin B12 Supplementation

The single shared deficiency of Vitamin B12 across both human and plant confirms structural validity of the infant-to-adult comparison. The line-up is so close that even the deficiency

matches, supporting the case that It is evolutionary. The B12 gap is identical in both, confirming the comparison tracks a real biological relationship rather than a coincidental one.

6. Conclusions

The two conclusions above are not mutually exclusive and may be explored in parallel.

Future work could include:

- Targeted clinical or observational studies testing the proposed “Adult Formula Breastmilk” profile in populations with suspected ECS dysregulation. The reclassification of Cannabis from Schedule 1 to Schedule 3 removed the legal barriers and this now can be tested by Universities, research groups or Government departments.
- Analytical validation of the alignments using standardized sampling and modern metabolomic techniques.
- Controlled feeding trials to assess bioavailability and functional impact on endocannabinoid tone (e.g., circulating anandamide or 2-AG levels).

We encourage independent researchers, clinicians, and nutrition scientists to evaluate these interpretations against the raw comparative data presented in the companion preprint and to test the hypotheses empirically.

References

(1) Floyd, K. Benjamin, J. Biochemical Alignment of Human Breast Milk and Hemp Seed + Raw Cannabis Leaf/Flower Across Endocannabinoid System-Relevant Nutritional Axes: A Comparative Observational Review. Zenodo 2026, DOI: <https://doi.org/10.5281/zenodo.19066408>

(2) Walker A. Breast milk as the gold standard for protective nutrients. J Pediatr. 2010 Feb;156(2 Suppl): S3-7. doi: 10.1016/j.jpeds.2009.11.021. PMID: 20105662.

Statements and Declarations

Conflicts of Interest

The authors declare no conflict of interest. The authors do not work for any cannabinoid business or industry.