

# Nature's Richest Omega-3 Source Offers New Hope in Medical Nutrition

*New plant-based oil shows life-sustaining promise for critical care patients, sustainable omega-3 wellness for all*

WINSTON SALEM, NC, UNITED STATES, January 6, 2025 /EINPresswire.com/ -- Refined [Buglossoides arvensis](#) seed oil, nature's richest source of omega-3 fatty acids, is showing new promise for sustaining millions of people every day who can't take in food orally due to their digestive tracts not functioning properly.

Omega-3 fatty acids are an essential component of nutrition delivered using parenteral nutrition (PN), i.e. intravenously administered nutrients. Early pre-term infants, surgical and critically ill patients, and many chemotherapy patients commonly take in all their nutrition from PN for a period of time.

If these patients didn't get their nutrients (proteins, carbohydrates, essential fats, vitamins, trace elements) this way, they would soon perish.

Lipid emulsions supply essential omega-3 and omega-6 fatty acids from single oils like soybean, or from oil blends that include soybean, olive, and fish oils in patients dependent on PN. One of these goes by the acronym 'SMOFlipid' — as it is made up of soybean, MCTs (coconut), olive and fish oils.

However, a recognized challenge with some lipid emulsions used for PN is their increased risk



Ahiflower® (*Buglossoides arvensis*) oil



for hyperglycemia (1), gut-liver inflammation (2), and bloodstream infections.

Some lipid emulsions used for PN have been linked to 'leaky gut' toxins escaping outside the intestine, provoking brain inflammation, and raising insulin resistance similarly to diabetes in these highly vulnerable patients. Although many patients' lives are sustained using PN, the risks of serious complications are real.

In new [research](#) aimed at improving nutritional support and health outcomes in patients receiving PN, a novel plant-based lipid emulsion (Vegaven®) has been developed. It uses refined *Buglossoides arvensis* seed oil (known commercially as Ahiflower® oil) as its main source of fatty acids including essential omega-3 and omega-6 fatty acids. Vegaven was found to have many distinct advantages over a conventional fish oil emulsion in neonatal piglets, whose intestines, livers, and overall metabolism is quite similar to infant humans.

In newborn piglets, Vegaven was shown to perform significantly better than SMOFlipid by:

- protecting the liver and providing more abundant anti-inflammatory omega-3 derivatives in the liver
- maintaining as much omega-3 DHA and omega-6 ARA in the brain — critical for neonatal brain development — as SMOFlipid, despite containing neither DHA nor ARA
- enhancing insulin signaling in the liver, providing better whole body glucose control
- mitigating the consequences of a 'leaky gut' and the toxins that drive up liver, pancreas, and the brain inflammation

Commenting in a recent *Journal of Nutrition* [editorial](#), leading lipid metabolism researcher Prof Philip Calder wrote, "In general, this new study shows superiority of the Ahiflower oil based emulsion over the fish oil containing emulsion... the findings suggest anti-inflammatory, immune supporting, insulin sensitizing and hepatoprotective effects of the Ahiflower oil emulsion relative to the comparator(s). These effects are all clinically relevant." Prof Calder further notes the consistency of the current piglet study's findings with a prior mouse PN study comparing Vegaven to pure soybean and fish oil lipid emulsions: "The findings of the two studies indicate superiority of the Ahiflower oil blend over pure soybean oil, pure fish oil and an oil blend that includes fish oil in these preclinical models. The superiority of the Ahiflower oil based emulsion over those containing fish oil is quite remarkable and requires explanation."

In describing its wider role outside of PN applications, Prof Calder observed, "Ahiflower oil may be [a] "pro-EPA" alternative to fish oil for many uses, including in PN. Sources of alpha-linolenic acid and SDA can have similar physiological effects as EPA+DHA in adults and alpha-linolenic acid (and SDA) is a precursor to bioactive lipid mediators, suggesting these fatty acids have their own inherent bioactivities and do not act solely as EPA precursors."

Prof Michael Zaugg, the lead researcher of the PN studies in piglets, expressed, “Ahiflower oil elicits in the body a different response compared to fish oil, one with superior anti-inflammatory, immunity-enhancing, and metabolic properties. Mechanistically, this superior response is due to the different profile of lipid mediators generated from fatty acids released from Ahiflower® oil as opposed to fish oil. This opens up major opportunities in evidence-based nutrition.”

Leading lipid researchers are acknowledging, therefore, that the liver, gut, and brain health benefits uncovered from research in PN also have crossover value in tube-fed (via the stomach) and oral enteral feeding, including in uses to ameliorate irritable bowel and GI tract inflammatory conditions.

Ahiflower oil is already a commonly used, safe food ingredient with FDA GRAS recognition, EU Novel Foods, Codex Alimentarius and other global dietary safety review clearances. The Canadian and Swiss research teams who developed the novel lipid emulsion Vegaven are excited by its potential to improve patients’ outcomes and thus are working efficiently towards its successful clinical approval.

While new PN applications proceed globally, supplements containing Ahiflower oil are readily available today in North America and the EU (and online everywhere else). People who are looking to improve their omega-3 dietary intakes and gain recognized anti-inflammatory and gut microbiome balancing benefits from *Buglossoides arvensis* seed oil can find it in liquid, powder, and vegan softgel formats. People choosing more sustainable, balanced, and clean-tasting omega-3 supplements will find this plant-based oil is an ideal omega wellness solution that won't cost the Earth.

## References

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