Echium seed oil is a unique plant oil with a rare profile of omega-3, -6 & -9 fatty acids, offering superior health benefits for vegetarians and vegans, above and beyond those associated with commonly available seed oils such as flaxseed. The seeds of *Echium plantagineum* are the richest natural plant source of the omega-3 stearidonic acid (SDA), which is readily converted to the important long-chain polyunsaturated (LC-PUFA) omega-3 fatty acid eicosapentaenoic acid (EPA) known for its anti-inflammatory, brain and cardiovascular health benefits. Unlike the short-chain alpha-linolenic acid (ALA), the primary omega-3 essential fatty acid found in flaxseed oil, SDA is much closer to EPA in structure and does not rely on the presence of the delta-6 desaturase enzyme to convert it to long-chain PUFAs. As a result, SDA offers an unusually high rate of conversion to EPA that is 5x greater than ALA. Approximately 25% of SDA converts to EPA, compared with just 5% of ALA. It is in part due to the greater increase in omega-3 EPA plasma levels that echium seed oil offers superior health benefits over any other vegan-friendly source of omega-3 fatty acids.

Anti-inflammatory mechanisms of echium seed oil

Inflammation, a key factor in the aetiology of chronic modern health conditions, is regulated by the balance between pro- and anti-inflammatory eicosanoids derived from omega-3 and -6 fatty acids. Omega-6 arachidonic acid (AA), the key driver of pro-inflammatory eicosanoid production, typically outweighs omega-3 intake by a significant amount, which affects cellular content and the production of AA’s associated pro-inflammatory signals. Persistent high levels of inflammation are associated with high AA levels and a barrage of chronic diseases. Echium seed oil confers significant anti-inflammatory properties and many subsequent health benefits through raising EPA levels more efficiently than any other seed oil. EPA’s unique relationship with AA offers strong potential for reducing inflammation, since it both directly displaces AA from cell membranes and also reduces the levels of AA released into circulation.

Comprehensive health benefits

Long-chain polyunsaturated fatty acids are essential for the functioning of the brain, cardiovascular and immune systems. Echium seed oil is rich in several important fatty acids; not only SDA and ALA omega-3s, but also the anti-inflammatory omega-6 GLA and the omega-9 fatty acid oleic acid. The novel profile of omega-3, -6 & -9 fatty acids in echium seed oil – in particular SDA, ALA & GLA in combination – is directly responsible for its superior effects over any other plant oil (see graph, below).
Side-by-side comparison studies show that SDA compares favourably with pre-formed EPA in raising cellular EPA levels and thus modulating inflammation. In addition, SDA itself inhibits many aspects of the inflammatory response, including leukotriene production and the COX-2 enzyme. Echium seed oil provides significant improvements to risk factors of coronary heart disease. The GLA content of echium seed oil offers health benefits including cell signalling support, management of blood pressure and cholesterol, promotion of healthy sleep cycles and also supporting EPA accumulation. Furthermore, there is a synergistic relationship between SDA and GLA, which makes echium seed oil especially unique.

SDA and GLA work together to increase the proportion of EPA in red blood cell membranes, even more effectively than supplementation with SDA alone.

For more information about Echiomega echium seed oil, visit our website: igennus.com. For a free sample or for technical queries, contact our nutrition scientists on 01223 421436 or email info@igennus.com.

Huge health potential for SDA supplementation – key further reading


