

GLA (Gamma-Linolenic Acid) and Linoleic Acid

Evidence for reduction in relapses and severity in MS

Evidence for slowing the rate of progression in MS

Reduce inflammation

Support neural structure and function

Sn2® Borage Oil contains both GLA and Linoleic acid

A safe and natural product

GLA is highly bioavailable as it is in the Sn2 position

Unique: highest premium pharmaceutical quality available on the market

Carefully specified for optimum dose

Quality controlled for long term use

Patent protected use in MS



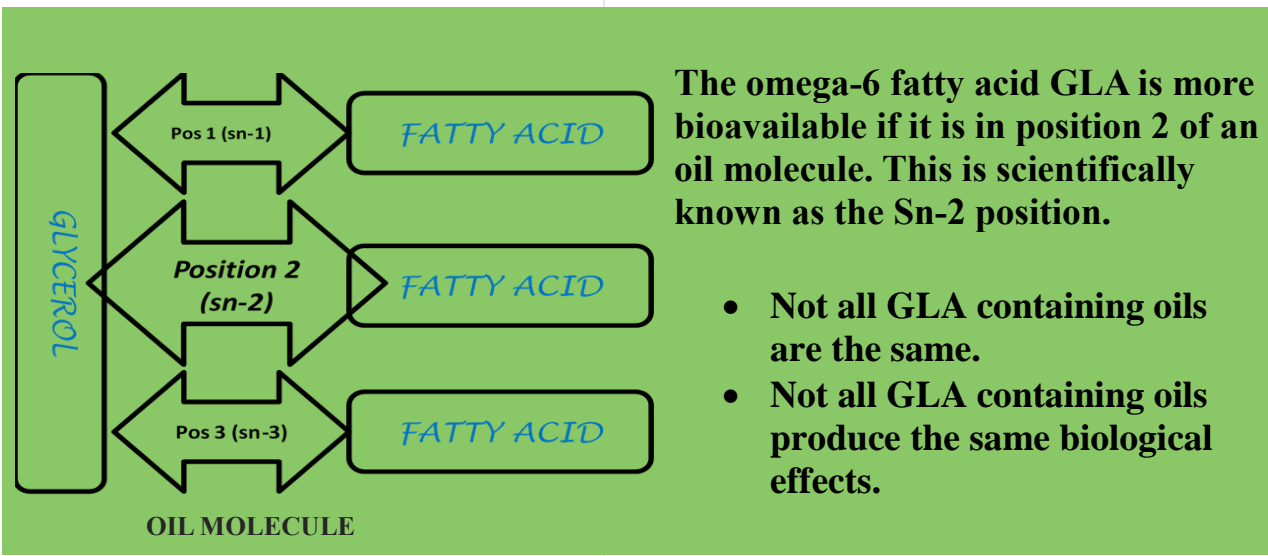
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# Sn2® Borage Oil

## Bioavailable GLA

Highest quality pharmaceutical grade  
GLA food supplement on the market





**The omega-6 fatty acid GLA is more bioavailable if it is in position 2 of an oil molecule. This is scientifically known as the Sn-2 position.**

- **Not all GLA containing oils are the same.**
- **Not all GLA containing oils produce the same biological effects.**

**Essential Fatty Acids & Multiple Sclerosis**

Linoleic acid (LA) and GLA (Gamma-Linolenic Acid) are key omega-6 fatty acids for the synthesis of fatty acids required by the vascular, immune and nervous systems. LA is found in sunflower and corn oils, whereas evening primrose and borage oils contain both LA and GLA. Combined data of three clinical trials in MS with LA alone showed reduced relapse rate and severity, and in mildly-affected MS a decrease in long term progression. To produce certain biological effects, LA has to be converted in the body into GLA. Factors such as disease e.g. MS, diet and age reduce LA's metabolic conversion to GLA. This can be due to inefficient conversion by an enzyme called delta-6 desaturase. In addition, in MS there is evidence of an increased demand for these fatty acids. The disturbed omega-6 fatty acid metabolism in MS can lead to loss of brain selective fatty acids and poor immune-inflammatory control.

**One way to overcome these conversion problems is to supplement with oil which contains GLA.**

GLA and borage oil have been researched scientifically in MS, neuropathies and inflammatory disease e.g. rheumatoid arthritis. Borage oil contains both GLA and LA therefore, is more effective than LA alone. Borage oil has the highest percentage yield of GLA.

The biological *effectiveness of GLA* however *depends on the amount in position 2* within the oil molecule (known as Sn2), not just the GLA percentage of the oil. In other words, if GLA is in the “right place” it can be more biologically available (bioavailable) and more effective than other GLA containing oils.

*Dworkin RH et al (1984) Neurology 34, 1441-1445; Harbige LS and Sharief MK (2007) British Journal of Nutrition 98, S46-S53; Rezapour-Firouzi et al (2015) Complement Ther Med 23. 652-657.*

Within the body GLA is converted to another fatty acid DGLA. DGLA is a key intermediate for the synthesis of further biologically active fatty acids which play important roles in brain structure and function and can reduce inflammation. Medical scientists carried out a proof of concept clinical trial in MS lasting 18 months. Participants were given 15 ml a day of selected borage oil which had high GLA in the “right place” i.e. in the Sn2 position of the molecule. Results showed that relapses were markedly reduced after 6 months of taking the selected oil and the rate of MS progression reduced. Sn2<sup>®</sup> borage oil is both carefully selected and of pharmaceutical grade and manufacture to ensure it is safe at the dose specified. 15 ml a day provides a minimum of 3 grams a day GLA of which at least 40% will be highly bioavailable at the Sn2 position. For best effects, a low saturated fat diet is advised in addition to regularly taking Sn2<sup>®</sup> borage oil.

**How to take Sn2<sup>®</sup> Borage Oil**

Three teaspoons (15 ml) to be taken daily. Best consumed with food and can be taken throughout the day. For flavour a squeeze of lemon can be added or mixed in cooled soup, porridge or simply added to salad.

**For more information, go to [www.medioil.co.uk](http://www.medioil.co.uk)**