

# AstaREAL<sup>®</sup> Astaxanthin

~Measurement method of AstaREAL<sup>®</sup> astaxanthin~

This month, we address an important issue regarding the quantification of **AstaREAL<sup>®</sup>** astaxanthin. Whether you produce supplements or outsource your manufacturing, the astaxanthin content needs to be checked routinely. Help is at hand in the form of analysis methods and technical support by Fuji Chemical Industry.

Two reliable methods are available for download at [AstaREAL.com](http://AstaREAL.com). Those methods determine astaxanthin content derived from *Haematococcus* microalgae; the source of **AstaREAL<sup>®</sup>**. The procedures have been perfected based on published work and internally validated by Fuji Chemical Industry. Moreover, several US authorized analytical laboratories employ the **AstaREAL<sup>®</sup>** method.

First, the High Performance Liquid Chromatography (HPLC) is the most accurate way to quantify natural astaxanthin. The procedure remains the same even when the sample contains other carotenoids such as lycopene, lutein and/or beta-carotene. Initially, samples require enzymatic de-esterification then HPLC analysis. The reason for the de-esterification step is that natural astaxanthin from *Haematococcus* is mainly esterified (astaxanthin molecule is linked to either one or two units of fatty acids). Esterified astaxanthin in a HPLC column is impossible to quantify accurately because of the fatty acid assortment. However, after astaxanthin is gently freed from the fatty-acids, it can then be resolved by HPLC.

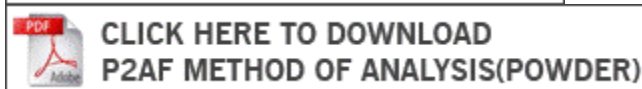
Enzymatic de-esterification is the recommended route because chemical saponification methods can oxidize astaxanthin and produce artifacts. Even though the HPLC process takes time and has to be followed exactly; the results are accurate and we recommend this method for your added peace of mind.

On the other hand, a second method is quick and convenient spectrophotometric assay. This 'spec-method' was determined empirically and yields a close estimation, but it's not as accurate as HPLC because the presence of carotenoids other than astaxanthin can inflate the final value. There is no need to de-esterify the sample but the downside is that the spectrophotometric result is always slightly higher than HPLC.

Moreover, other sources of astaxanthin has been tested with the **AstaREAL<sup>®</sup>** HPLC and spectrophotometric method e.g. synthetic astaxanthin and *Phaffia rhodozyma*

astaxanthin.

For further support and technical inquiries do not hesitate to contact the Fuji Chemical Industry.



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Fuji Chemical Industry, Japan is the world leader in the production and research of **AstaREAL®** natural astaxanthin. For more information, please visit [www.astareal.com](http://www.astareal.com) or [contact us](#).

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