



# Greenleaf Medical

## Five New Human Studies Completed by Greenleaf Medical AB Since 2013 NutraAward Win for Best New Ingredient

*Global leader in nutraceutical research and development announces results of five human studies and two animal trials*

**STOCKHOLM-(March 10, 2014)-Since winning NutraAward's 'Best New Ingredient' at Nutracon in March 2013, Greenleaf Medical's Appethyl™ has been the subject of five new successful clinical trials. These five human studies and two animal trials have affirmed both the [appetite suppression](#) and weight loss effects found in the original pilot trials.**

Appethyl™ is the tradename for the clinically-tested appetite suppression product from spinach that is being brought to the marketplace by [Greenleaf Medical](#) (GLM), a Swedish company that has licensed the patented technology from Lund University in Sweden.

In the clinical trials completed in 2013, Appethyl has been shown to provide the following key benefits:

1. Significantly reducing appetite four to six hours after ingesting the product with a meal. In addition, post hoc analysis showed that there was no difference between 3.7g and 7.4g dose as both doses were equally effective in reducing both hunger and thinking about food at four hours.<sup>1</sup>
2. Significantly reducing cravings for sweets after the first dose of 5 g, but even more significantly after 90 days and throughout the entire day.<sup>2</sup>
3. Significant weight loss and fat loss as well as significant loss in waist circumference compared to placebo in a very well-controlled (DBPC), 12 week independent clinical trial utilizing 2.5g given twice daily.<sup>3</sup>

Post-market analysis has also provided additional insights including a common experience being an increase in appetite suppression over three to four days. This effect is interesting since there is published clinical data supporting a significant reduction in appetite after just one dose which is now further supported by another yet to be published clinical trial. In addition, there are many reports of individuals feeling better when they take the product, which may be explained by one of those 100 or so proteins found in the active thylakoids found within [Appethyl](#) and one in particular, rubisco.

Two animal trials were also completed in 2013, which helped expand the physiological effects of this proprietary spinach extract. The first trial investigated the effects of Appethyl on the gut flora in rats while the second investigated the effects of Appethyl on CCK and blood glucose and insulin in pigs fed only glucose. The results are summarized below:

1. Rats fed Appethyl™ for just 10 days resulted in a significant prebiotic effect increasing the growth of *Lactobacillus reuteri*, a beneficial probiotic, as well as producing a completely different fecal flora from that of the control group. In addition, the product was found to significantly reduce food intake as well as a 60% lower plasma insulin levels two hours after ingesting an oral glucose tolerance test (OGTT).<sup>4</sup> The novel prebiotic finding is the basis for a new patent application.
2. Pigs fed Appethyl along with receiving OGTT resulted in significantly lower blood glucose levels within the first hour, greater CCK within just 30 min and an even more significant drop in ghrelin between 2 and 4 hours post-ingestion.<sup>5</sup>

Since the 2013 **NutraAward** win, Greenleaf Medical celebrated their first product launch of Appethyl in Sweden. Appethyl was the number one selling nutraceutical in the largest health food store chain in Sweden within weeks of its introduction to the market.

**For more information on Appethyl™ or Greenleaf Medical, please visit <http://www.gl-medical.com> or contact Maria Soderberg at +46 70 869 27 06, (GMT +1) email: [ms\(at\)gl-medical\(dot\)com](mailto:ms(at)gl-medical(dot)com).**

### **About Greenleaf Medical AB**

Greenleaf Medical is a Swedish research and development company, active in the global nutraceutical market, which sells and develops natural ingredients with well-documented, beneficial health effects. Greenleaf Medical works together with universities and international science and regulatory groups. Their products are used in both Functional Food and Dietary Supplements.

Greenleaf Medical believes the secret of health and beauty is based on finding the best ingredients through scientific validation. Dedicated to creating natural products with published mechanism-of-action and efficacy studies, the Greenleaf Medical team believes in the unique composition of natural, active ingredients and innovative formula of their supplements.

### **References:**

- <sup>1</sup> Stenblom EL, Montelius C, Ostbring K, Hakansson M, Nilsson S, Rehfeld JF, Erlanson-Albertsson C. *Supplementation by thylakoids to a high carbohydrate meal decreases feelings of hunger, elevates CCK levels and prevents postprandial hypoglycaemia in overweight women.* **Appetite** 2013;68:118-23.

<sup>2</sup> Erlanson-Albertsson C, Montelius C, Erlandsson D, Vitija E, Egecioglu E, Podgórski K. *Suppressed urge for sweet and release of GLP-1 in overweight women through consumption of green plant thylakoids.* Presented at **5<sup>th</sup> Swiss Winter Conference on Ingestive Behavior**, March 3, 2014, St Moritz, Swiss.

<sup>3</sup> Unpublished data.

<sup>4</sup> Montelius C, Osman N, Wstrom B, Ahrne S, Molin G, Albertsson P-A, Erlanson-Albertsson C. *Feeding of spinach thylakoids to rat modulates the gut microbiota, decreases food intake and affects the insulin response.* **Journal of Nutritional Science** 2013;2:1-9.

<sup>5</sup> Montelius C, Szwiec K, Kardas M, Lozinska L, Erlanson-Albertsson C, Pierzynowski S, Rehfeld JF, Weström B. *Dietary thylakoids suppress blood glucose and modulate appetite-regulating hormones in pigs exposed to oral glucose tolerance test.* **Clinical Nutrition.** 2014.