



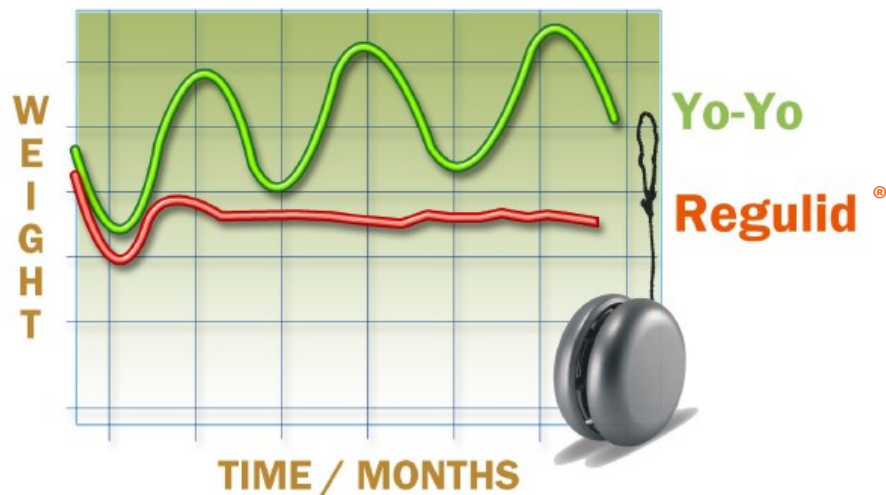
REGULID Plus[®] FIGHT YO-YO DIET SYNDROME

Unique Advantages

- ✓ Stabilize weight and fight yo-yo effect.
- ✓ Reduce adipocyte differentiation & increase lipolysis.
- ✓ Anti-inflammatory action.
- ✓ Natural extract of organic garlic and omega-3.

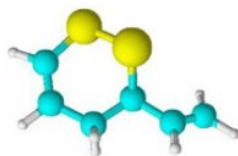


Regulid Against Yo-Yo Diet



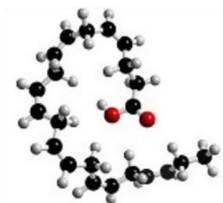
Research has shown that taking **REGULID Plus[®]** during a sensible weight loss diet, and continuing to take it for 3-6 months afterwards may help ***maintain the post-diet weight by inhibiting the process by which fat cells store up on fat***. The specific garlic active principals in **REGULID Plus[®]** have been shown to affect the metabolism of adipocytes (fat cells) and to also have beneficial effects on inflammation and Triglycerides levels.

REGULID Plus[®] is a food supplement dosed in active organosulfur compounds derived from olive oil-macerated organic garlic (*Allium sativum*). The uniqueness of **REGULID Plus[®]** results from its standardization in **Vinyldithiins** (e.g. 2-vinyl-(4H)-1,3-dithiin, 3-vinyl-(4H)-1,2-dithiin), and **Sulfides** (diallyl di-sulfide, diallyl trisulfide and methyl allyl disulfides).



1,2 Dithiin

REGULID Plus[®] also contains a mix of omega-3 polyunsaturated fatty acids (2 capsules of Regulid provide minimum 250 mg EPA/DHA).



DHA

REGULID Plus[®]

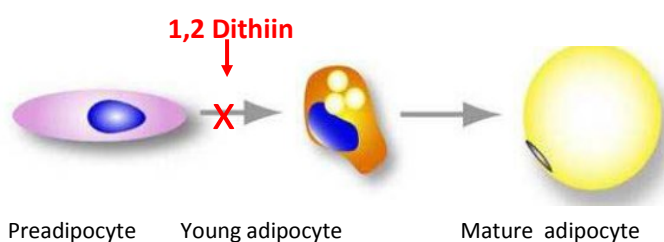
The active ingredients of **REGULID Plus®** have the potential to aid in weight management by intervening on the metabolism of adipose tissue: improving inflammatory status, reducing adipocyte hyperplasia, enhancing lipolysis and increasing fatty acids oxidation.

Low-grade but chronic **inflammation** is now recognized to play a major role in overweight and obesity, characterized by increased serum levels of proinflammatory mediators such as IL-6, TNF- α , MCP-1, acute phase protein such as CRP and macrophage accumulation and activation in adipose tissue. Continuous cycle of cross-talk between macrophages and adipocytes perpetuate the proinflammatory status of overweight and obese individuals. This inflammatory cascade together with fat deposition in non-fat tissue (skeletal muscle and liver) lead to metabolic disorder like insulin resistance. Enlargement of adipose tissue can occur either by **hyperplasia** (an increase in adipocyte cell number) or hypertrophy (an increase in adipocyte volume). Hyperplasia results from the recruitment of new adipocytes from precursor cells in adipose tissue and involves the proliferation and differentiation of preadipocytes in mature adipocytes. Hypertrophy often precedes hyperplasia.

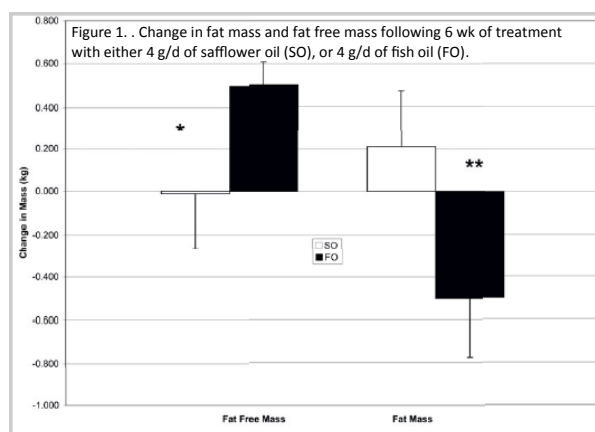
Lipolysis is the process by which triglycerides are broken down into free fatty acids in order to provide the necessary energy to peripheral tissues via **β -oxidation** in mitochondria. Furthermore, lipolysis allows to limit hypertrophy.

Inhibition of Adipocyte Differentiation

Limiting white adipose tissue expansion could be effective in preventing the progression of obesity and the development of associated complications. It is also important for weight maintenance to reduce the production of new mature adipocytes, that are providing high storage capacity for circulating fat. Efficacy of 1,2-vinyldithiin (one of the major active principals in **REGULID Plus®**) on the differentiation of human preadipocytes has been evaluated by bioXtract. 1,2-vinyldithiin inhibits preadipocyte differentiation and formation of new mature adipocytes.

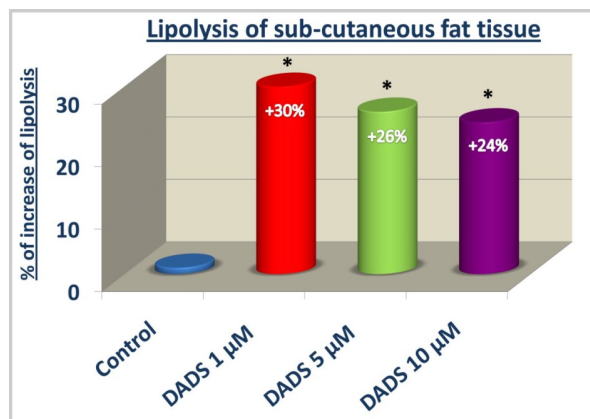
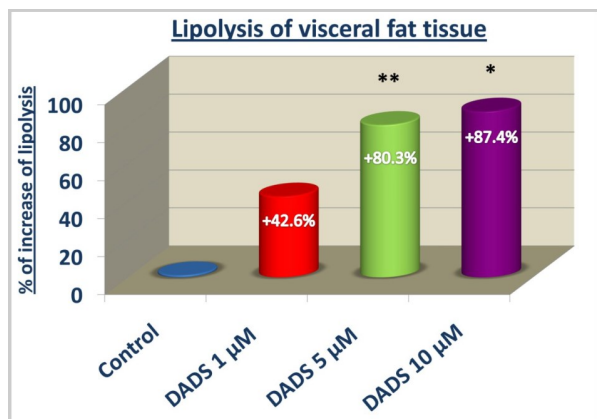


Omega-3 fatty acids have also been shown to inhibit adipocyte differentiation and proliferation in cell culture (3T3-L1 adipocytes) as well as in animal and human models. Significant reduction in fat mass and increase in fat free mass were observed in healthy humans following 6 weeks of fish oil supplementation (4 g/d), with control group receiving equal quantity of safflower oil (Figure 1).



Enhancement of Lipolysis

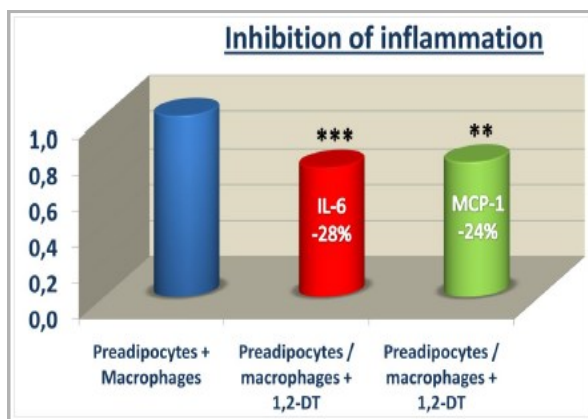
REGULID Plus® is standardized in sulfides and vinylidithiins; DADS (diallyldisulfide), one of the three major sulfides, has been evaluated for its efficacy on adipocyte lipolysis. *In vitro* cultures of human adipocytes (issued from young healthy women undergoing liposuction) were exposed to DADS at various concentrations. DADS induced lipolysis of mature adipocytes, releasing fatty acid and glycerol. Same results were observed while using a mix of sulfides (DADS, DATS and MATS). DADS was efficient in inducing lipolysis of both visceral and sub-cutaneous adipose tissue.



Inhibition of Inflammation

Overweight and obese people are suffering from a silent and low-grade inflammation that day after day slowly leads to cardiovascular disorders such as type II diabetes, cholesterol deregulation, and increased cardiovascular risk factors.

1,2-vinylidithiin has proven its anti-inflammatory efficacy on preadipocytes infected by macrophages. It inhibits in particular IL-6 proinflammatory cytokine as well as MCP-1 (monocyte chemotactic protein-1) production.

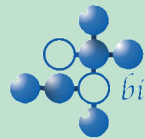


Variable	Mean +/- SD		p-value
	Treatment group	Control group	
TNF-α (pg/ml)			
Before treatment	37.52+/-6.41	38.68+/-9.53	0.5
After treatment	34.46+/-6.40	40.67+/-11.01	0.002
IL-2 (pg/ml)			
Before treatment	42.47+/-13.85	42.46+/-19.78	0.9
After treatment	35.25+/-11.28	51.52+/-19.71	0.0001
CRP (mg/ml)			
Before treatment	25.68+/-27.38	18.67+/-16.75	0.1
After treatment	20.35+/-24.19	18.17+/-11.33	0.5

Table 1. Alteration of the inflammatory response in diabetic patients treated with omega-3 or placebo.

Treatment with omega-3 (DHA + EPA) also modulates the production of adipokines (adipose-tissue derived factors) by decreasing the level of serum IL-2, TNF-α and CRP in a population of overweight adults with type 2 diabetes (see Table 1).

REGULID Plus® contributes to the management of this low-grade inflammation, protecting people from metabolic disorders linked to their overweight status.



bioXtract

Next Generation Food Supplements

Our Core-Business

bioXtract is a B to B/**private label** developer and manufacturer of innovative **food supplements** or **active ingredients** for pharmaceutical and food supplement industries for Belgian and export Markets.

These active ingredients are presented in the form of **formulated extracts** that can be used as ingredients for the manufacture of food supplements, but also as **ready-to-use finished dosage forms** in private label (capsules or tablets, in bulk or in blister and complete packaging under our customers' brand) .

The elaborate extracts are **standardized** in natural active ingredients rigorously selected for their activities in **specific pathologies** (arthritis, metabolic syndrome, allergic rhinitis, IBS and gastrointestinal disorders, inflammatory diseases ...).

Based on his know-how in the field of quality systems, industrial scale-up and registration processes, **bioXtract** design food supplements or active formulated ingredients from the selection of raw materials until the industrial manufacture of finished products.

Our Quality

The logistic/manufacture facility of **bioXtract** is **registered and approved by the AFSCA** (Federal Agency for the Food Chain Safety) for food supplement production under the Registration Number AER/NAM/004889 since 2006.

bioXtract disposes of a validated **Self-Inspection System (SIS)** which ensures the respect of requirements linked to the food safety.

bioXtract is **FSSC22000 certified**, which is a certification scheme for food safety systems including ISO 22000:2005, ISO 22002-1:2009 and additional FSSC 22000 requirements

bioXtract is **GMP certified** according to NSF/ANSI Standard 173, Section 8 dedicated to dietary supplements for both our laboratory and logistic/manufacture premises.

A global Quality Manual is available upon request for more complete information

Our Products

bioXtract has acquired a particular know-how of over 10 years in the development and management of products based on the active ingredient "**curcumin**" and is the leader in Belgium for this asset, having developed several innovative and highly bioavailable curcumin formulations (patented).

Finished dosage form (capsules):

- **Arantal®** a remedy for chronic treatment of **osteoarthritis** and **inflammatory diseases**
- **Nasaler®** a natural remedy for the symptoms of **allergic rhinitis**, offering symptomatic relief with long term immunomodulating activity
- **Rifencin®** a natural remedy for the relief of gastrointestinal disorders like Irritable **Bowel Disease (IBD)** or **Irritable Bowel Syndrome (IBS)**

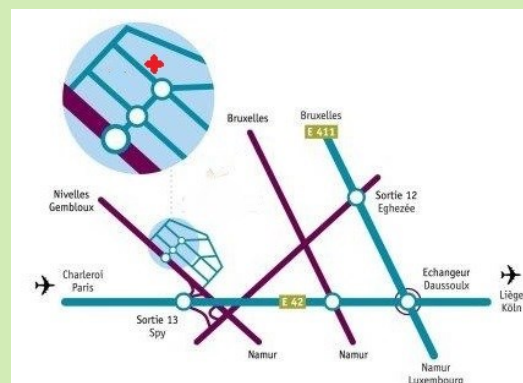
Bulk ingredient:

Cursoj®, a pre-formulated powdered ingredient for the manufacture of food supplements with **anti-inflammatory actions**.

bioXtract's innovative range of dietary supplements also includes:

- **Regulid Plus** acting on the **weight stabilization** in yo-yo dieting syndrome as well as on blood HDL and triglyceride level management, acting as a natural treatment of the **metabolic syndrome**
- **Cognityl**, associating theobromin from cocoa and cafein from tea for **concentration and mental energy**

Both are available in the form of bulk formulated ingredient or in the form of finished dosage forms.



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