

# Clinico-Pharmacological Study on The Effect of The Bulgarian Food Supplements Biocorect in The Treatment of Obesity and Related Disorders

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## Abstract

Data for six foods supplements (Biocorect) designed for obesity and related disorders are presented in the study. These products are made on the basis of bee products (propolis, bee polen etc.), herbs and biologically active substances. A favorable effect on the indexes of metabolism and cardio-vascular system is determined. Our experience with the application of Biocorect (available in six different modifications) shows significant decrease of body weight, BMI, % fat mass, hip circumference and increase of lean body mass.

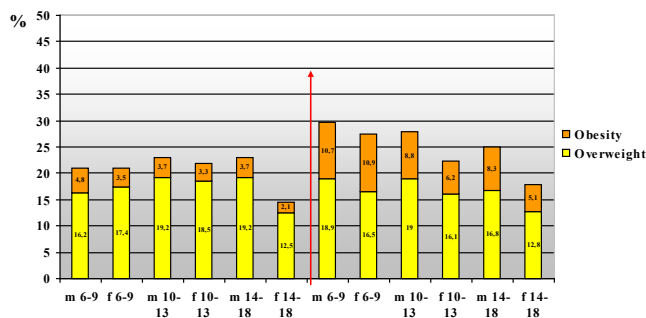
## Keywords

obesity; related disorders; bee products; fat mass; lean body mass; waist; dislipidemias; arterial hypertension

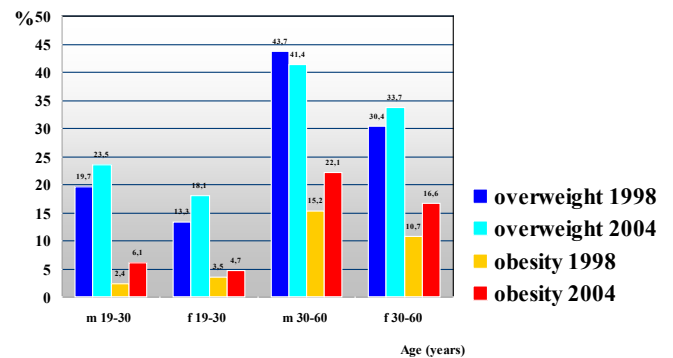
## Introduction

Overweight and obesity are very common diseases around the globe, and prevalence continues to increase in most countries. In Bulgaria about 58 % [1] of the population above 18 years of age is either overweight or obese, and this proportion is still increasing. The below-presented Tabl. 1 and Tabl. 2 [2] demonstrate the increase in the proportion of obesity in Bulgaria during recent years.

**Tabl.1** Overweight and obesity prevalence in schoolchildren (National survey on nutrition and nutritional status of schoolchildren in Bulgaria (-1998, 2010-2011



**Tabl.2** Prevalence of Overweight and Obesity among adults (19 – 60 years old) National Monitoring of Dietary Intake and Nutritional Status, 1998, 2004



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Bee products are a milestone for the health Balkan nutrition. Our studies stress on the important role of the apidietics (nutritional regiment, enriched with propolis, honey, royal jelly, bee polen, laclarville etc.) in the prevention on treatment of obesity and atherogenic risk factors (V.Vasilve and E. Petkov, 200, 2004; Sv. Handjiev et al., 1995-2001). On the base of these studies we created a series of dietary products [3,4] for treatment and prevention of obesity and metabolic syndrome – Biocorect+, containing a mixture of propolis, multiflavour honey, bee polen and various herbs and bioactive substances. Our hypothesis is that the products Biocorect+ have an effect on the stomach mucosa, respectively on the secretion of the stomach hormones ghrelin and obestatin. Thus, there is a positive effect on the metabolic process.

**AIM:** The aim of our study is to describe food supplements designed for prevention and treatment of obesity and related disorders. It concerns six different food supplements containing bee products, different herbs and many biologically active substances. These foods are designed for persons, who not only suffer from overweight, but also from arterial hypertension, dyslipidemia, arthrosis and those in psycho-emotional stresses.

## Materials and Methods

The following supplements from the line Biocorect have been studied:

- Biocorect universal – for overweight people without essential complications. Helps to decrease the over increased appetite. Increases organism's bioenergetics. Leads to a feeling of satiety. The purgative effect is moderate and well accepted by the organism. Helps total strengthening of the organism. It has powerful antioxidant effects and a good interaction with all medicine, food and diet regimes.
- Biocorect without propolis and bee-honey, and with extra. GarciniaCambogia – garcinia is an Asiatic fruit and its extract is a concentrate of hydroxicitric acid. According to competent researches it has been shown to decrease excessive appetite, improve food absorption / so that the organism would satisfy itself with less food/, and has thermogenic effect / accelerates excessive calorie burning by more than 10%/. Antraquinon glycosides in PhamnusFrangula L and Senna act to loosen and eliminate the self-poisoning in the organism, which initiates some obese forms as well as other diseases. Softening components of mallow and linseed calm irritated mucous membranes of digestive organs and together with previous

components help normalize peristalsis and metabolism. Corn hair is a tested mean for kidney cleansing and liberation of hold liquids accumulated in kidneys, tissues and intercellular spaces /with or without oedemas/. Thanks to the complexity of well-studied biologically active components /valepotriats, organic acid, etc/, the Valerianae eliminates stress-induced tension, which makes many people overeate when it is needless for their body. Concentrated extracts from natural products contain valuable vitamins, minerals, and antioxidants, which supplement and strengthen the organism.

- Biocorect-high blood pressure- for overweight people with high blood pressure. Affects the cardiovascular system favorably. Calms down the over-stimulation. Helps to normalize body weight and blood pressure. Has moderate purgative and diuretic action.
- Biocorect-high cholesterol – for overweight people with high total cholesterol, high low density /the bad one/ cholesterol, and increased triglycerides. It strengthens the organism's bioenergetics. It affects favorably body weight values, total, HDL and LDL cholesterol and triglycerides. Has an antioxidant effect. Decreases early arterial sclerosis and cardiovascular diseases risk.
- Biocorect-joint problems – for overweight people with joint problems /"exostoses" and different degenerative joint changes/. Increases organism's bioenergetics. Has an antioxidant and analgesic effect. Helps decrease overweight and concomitant joint complaints. Helps strengthen the organism generally. Has good interactions with all medicine, food and diet regimes.
- Biocorect-gall-stone Gallic troubles –for overweight people with gallstone gallic troubles/gravel and gallstones in gallbladder and bile-duct,gallic dyskinesia/. Helps to decrease overweigh and stimulates gastric, gallic and pancreatic secretions. Has analgesic and anti-spasm effect. Increases the feeling of satiatiion.
- Biocorect-nervous tension – for overweight people with psycho emotional distress. Helps to decrease body weight and strengthens the nervous system generally. Calms down the over stimulation and helps regulate the sleep. Decreases the increased appetite.

The food supplements mentioned above have been tested among 302 individuals diagnosed with obesity (171 – females and 131 – males). The mean age was 46.3 years and mean body mass index (BMI) 32.8 kg/M2. After allergy examination the food /Biocorect universal/ was prescribed as follows: 5 days – 3x40 drops 15 minutes before eating; 2 days- 2x60 drops /at 10a.m. and at 4p.m. in a cup of tea/.

At the beginning and at the end of the first and second month's anthropometric indexes – height, weight, BMI, waist circumference, fat mass, lean body mass, lean body mass/lean mass ratio, visceral body fat – were examined. The anthropometric measurements are completed with impedance apparatus “Tanita 420”. Sagittal diameter was also measured using a caliper. From the markers of the lipid exchange is tested – total cholesterol (mmol/l), LDL-cholesterol (mmol/l) and triglycerides (mmol/l). All tests were made at the beginning and in the end of the research. We have also tested systolic blood pressure (SBP) and diastolic blood pressure (DBP). The results are statistically processed and for a statistical significance is

considered  $p < 0.05$ .

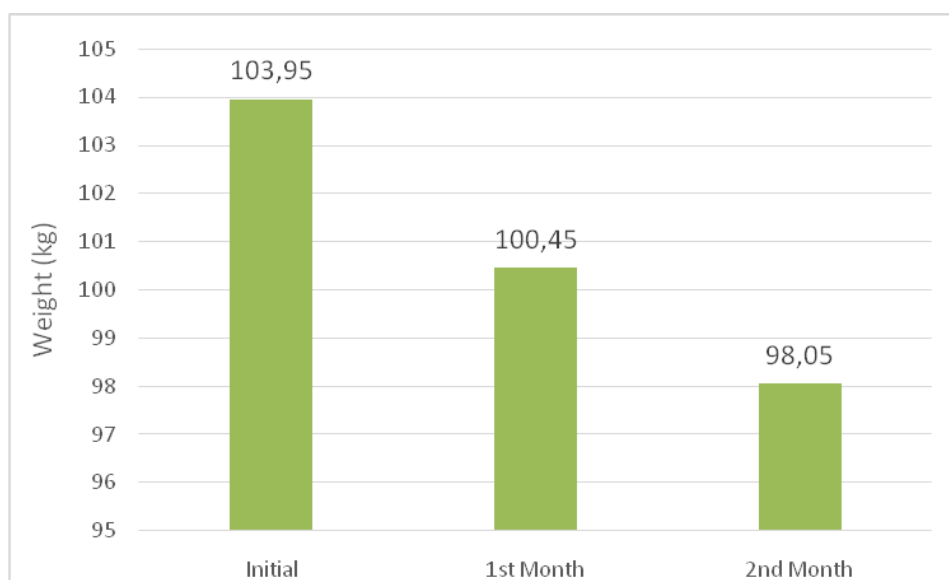
## Results and Discussion

After two months a significant reduction of mean weight and waist circumference was observed (Table 1) – weight by 9 kg, waist circumference by 13 cm,  $p < 0.01$ . FM decreases by 4.2 % and LBM increases by 4.2% and resp. the ration LBM/FM increases. All these results emphasize the favorable effect of the tested supplement on body composition of the patients. It should also be taken into account that the decrease of the VBM, W, the ration W/H and SD shows a lowered risk for cardiovascular diseases.

**Table 3**

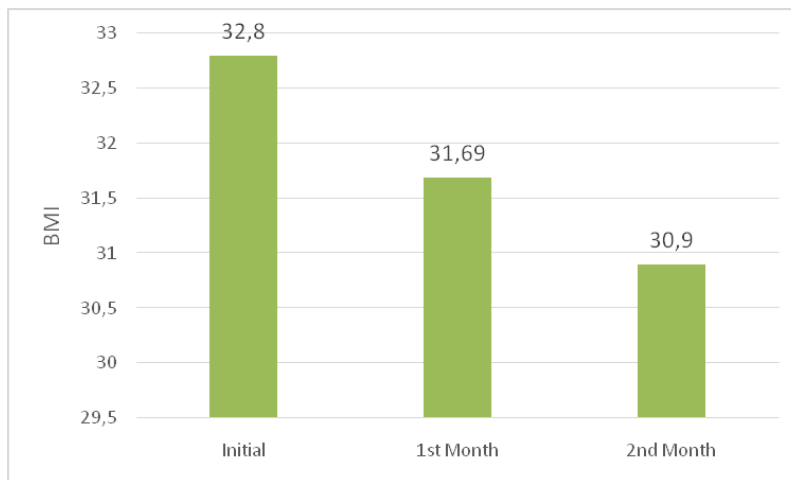
Parameter	BMI	FM	LBM	LBM/FM	VBM	W	H	W/H	SD
Before treatment	35.4	39.4	60.6	1.53	14.1	109	120.2	0.91	27
After treatment	31.9	35.2	64.8	1.84	12	96	113.2	0.85	24.2

\*\*\* BMI – Body Mass Index; FM – Fat Mass, LBM - Lean Body Mass; VBM – Visceral Body Mass; W – Waist; H – Hips; SG – Sagittal Diameter

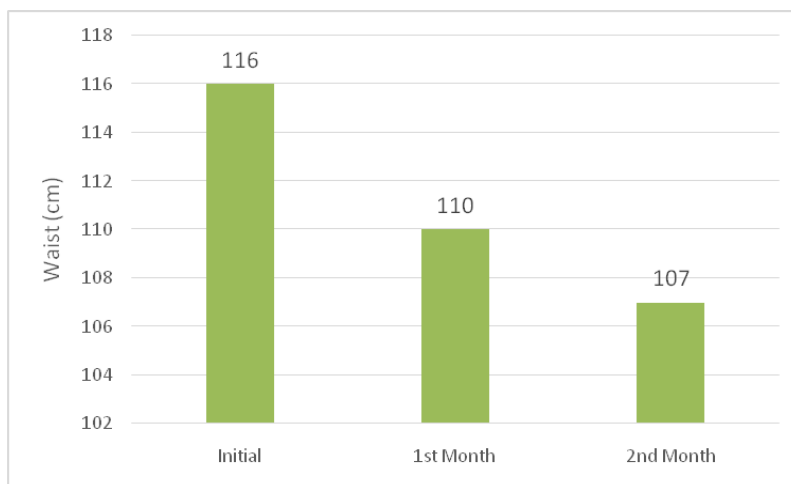


**Figure 1.** Weight changes in kilograms over the course of the study.

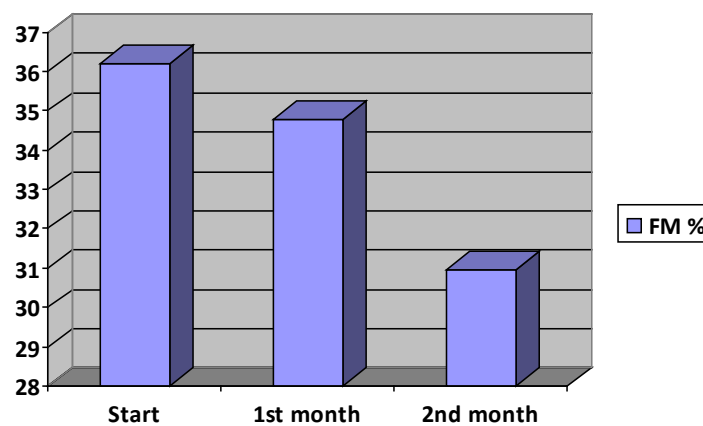
**Figure 2.** Body Mass Index (BMI) changes over the course of the study.



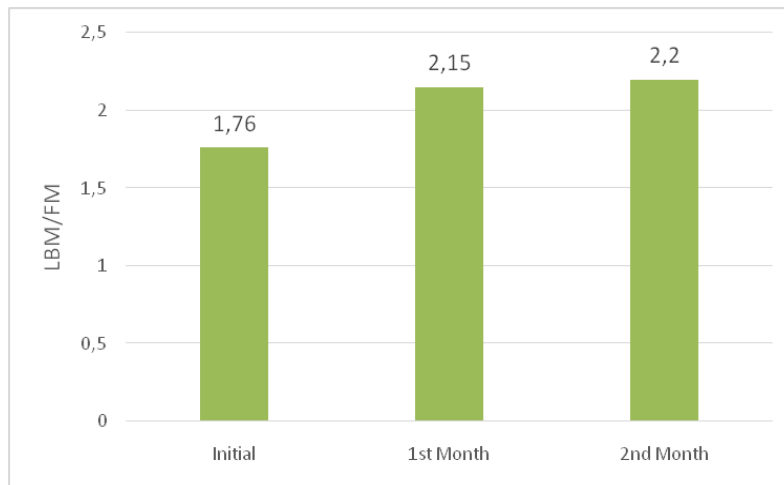
**Figure 3.** Waist changes (cm) over the course of the study.



**Figure 4.** Fat Mass (%) during the study.



**Figure 5.** Lean Body Mass (LBM)/ Fat Mass (FM) ratio changes over the course of the study.



**Table 4.** Lipid status and blood pressure was also ameliorated for this period.

	Total cholesterol	LDL	Triglycerides	SBP	DBP
Before treatment	6,72	4.42	2.34	160	95
After treatment	*5.52	*3.26	*1.72	*145	*85

\*p<0.05

Lipid status and blood pressure was also ameliorated for this period (Table 4)

At the end of the treatment there was a detected improvement in psychological status.

The decrease of the visceral fat mass corresponds to the decrease of the sagittal diameter and all this data shows the decrease of cardiovascular complications and also the decrease of the atherogenic risk factors.

In obese persons, Biocorect exhibits a favorable effect and is well tolerable for the patients.

## Conclusion

1. Our results demonstrate that food supplements Biocorect exhibit a healing effect in obese persons.

2. Biocorect has the capacity to reduce the body weight (resp. BMI), FM, VBM, W, SD, hyperlipidemias, high blood pressure and atherogenesis.

3. The product does not present side effects in the patients.

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