

## **Nutritional use of $\beta$ - escin and chokeberry extract in subjects with excessive body weight**

### **Abstract**

Excess body weight not only affects the quality of life, but is also a risk factor for numerous diseases of cardiovascular, digestive, endocrine, excretory, neurological, respiratory and immune systems. Currently available weight loss treatments include dietary, pharmacological and behavioral methods. However, as the mechanisms of controlling hunger and satiety are not fully understood, the treatments are often limited by insufficient effectiveness and severe undesired side effects of the used medication. Thus, a search for safe and effective therapy for patients with overweight and obesity continues.

Previous studies have shown that  $\beta$ -escin isolated from the seeds of the horse chestnut (*Aesculus* L.) is an inhibitor of pancreatic lipase. Results from experimental animal studies suggest that  $\beta$ -escin, by inhibiting digestion and, consequently, preventing the absorption of dietary fats, may contribute to weight loss. For chokeberry fruit extracts studies demonstrate that they may have beneficial effects in prevention and treatment of chronic disorders including long-term prevention and treatment of obesity and metabolic disorders. Chokeberry fruit extracts have anti-inflammatory, anti-cancer and cardioprotective as well as anti-diabetic properties.

The aim of the study was to evaluate the effectiveness of a preparation containing  $\beta$ -escin and chokeberry extract in reducing body weight in overweight and obese subjects. The study was approved by the Bioethics Committee at the Medical University of Warsaw. For the study a group of 45 volunteers aged 25 to 61 years (86% women, 14% men) with normal body weight, overweight and obesity was recruited, of which 24 participants (53%) completed it. In all the subjects anthropometric measurements and body composition analysis with the use of electrical bioimpedance were performed three times: during recruitment and 6 weeks and 12 weeks from the start of the study. During each meeting the participants completed a validated appetite questionnaire. The volunteers consumed 20 ml of the preparation immediately after each meal, 3 to 5 times a day, for a total of 12 weeks. The study results reveal that the consumption of  $\beta$ -

escin and chokeberry containing product leads to a significant reduction in overall appetite, and in particular to significant reduction of satiating meal size, reduced number of hunger episodes and reduced palatability of meals. Furthermore, the obtained data indicate that the treatment is associated with a statistically significant decrease in fat-free mass, change in water distribution and reduction in glycogen content. The results of the study show that  $\beta$ -escin-chokeberry product evokes appetite suppressing effect, which contributes to weight reduction.

**Keywords:**  $\beta$ -escin, chokeberry, body weight reduction, appetite reduction, excessive body weight, dietary supplements