

***Plantago* preparations  
for treatment of  
obesity-associated  
metabolic  
disturbances**



# Obesity epidemics



Obesity is a worldwide epidemic. It is expected that the amount of overweight subjects worldwide will raise to 3.3 billion (2.2 billion overweight and 1.1 billion obese) in 2030.

## China's weighty issue

### NUMBER OF OBESE PEOPLE IN CHINA

#### MEN

1975: 0.7 million

2014: 43.2 million

#### WOMEN

1975: 1.7 million

2014: 46.4 million

### PROPORTION OF GLOBAL OBESITY

#### MEN

1975: 2.1%  
Rank: 13

2014: 16.3%  
Rank: 1

#### WOMEN

1975: 2.5%  
Rank: 10

2014: 12.4%  
Rank: 1

Source: The Lancet

## OVERWEIGHT AND OBESITY PERCENTAGES

Adults with a body mass index of between 24 and 27.9 are classified as "overweight", while those with BMI of 28 or higher are classified as "obese"

### OVERWEIGHT ADULTS (Age 18 and older)

22.8%

2002

30.1%

2012

### OVERWEIGHT CHILDREN (Aged 6-17)

4.5%

2002

9.6%

2012

### OBESE ADULTS (Age 18 and older)

7.1%

2002

11.9%

2012

### OBESE CHILDREN (Aged 6-17)

2.1%

2002

6.4%

2012

Source: The National Health and Family Planning Commission

CHINA DAILY

The total medical cost attributable to overweight and obesity was estimated at **21.11 billion Yuan (RMB) (~\$2.74 billion)** accounting for **25.5% of the total medical costs** for the four chronic diseases, or **3.7% of national total medical costs** in 2003

# *Plantago* in medicine



*Plantago* species are used for centuries for treatment of the diseases of respiratory tract, skin, digestive tract, cancer, urogenital system, and wound healing



**The use in medicine is possible due to:**

Antioxidant effect

Antiinflammatory activity

Antibiotic/probiotic effect



# Scientific basis

A growing amount of experimental data (including our own investigations) indicating the protective effect of *Plantago* preparations in:

- Diabetes
- Obesity
- Metabolic syndrome

Dietary supplements with *Plantago* for treatment of obesity-associated metabolic disorders is being patented in the Russian Federation

The international patent is prepared



# Advantages

**Why it is possible to use Plantago preparations as dietary supplements for treatment of obesity-associated metabolic disorders?**

- Plantago species are distributed worldwide;
- Plantago species can be artificially cultivated;
- Low cost of production;
- Various preparations (juice, alcoholic and aqueous extracts, dried leaves) may be produced;
- Different part of plants may be used (leaves, seeds, husk);
- In contrast to medicinal anti-obesity drugs has lower amount of side-effects.



# Requirements

## Research:



Certain laboratory experiments are already performed. The clinical trial is planning to be performed.

Enrichment strategies are developed.

## Production:



A Russia-based company that performs collection and production of *Plantago* raw material and production of preparations.

## Distribution:



A China-based company for distribution of *Plantago* preparations as food supplements.



# Contacts

**Anatoly V. Skalny**

**Center for Biotic Medicine, Moscow, Russia**

**[skalnylab@gmail.com](mailto:skalnylab@gmail.com)**

**[skalny3@microelements.ru](mailto:skalny3@microelements.ru)**

