Spila Spirulina microalgae applications for human food, health and animal feed

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SPILA UAB
LITHUANIA
Biotechnology in Lithuania

• White biotech
• Fermentas AB molecular biology tools. Part of Thermo Fisher Scientific, the world leader in serving science.
Agricultural or green biotechnology

- Some academic institutions
- Forestry
- Biofuels from renewables
Blue biotechnology

• Very first steps.
• Scarce info from few institutions involved.
• Private commercial activities like our company
History

Which came first?

Chicken?

Egg?

Answer is

SPIRULINA

Algae were the first plants to appear on the planet billions of years ago
Spirulina nutrition

Probably the richest protein source in the world containing 65-71 percent complete protein with all essential amino acids

Has an especially high vitamin content, including B vitamins (B1, B2, B6, B12), beta-carotene, and vitamins E and K.

Is a great source of antioxidants, with strong antioxidant and anti-inflammatory effects

The best whole food source of gamma linolenic acid (GLA)

Rich of other nutrients:

300% more calcium than whole milk

2300% more iron than spinach

3900% more beta carotene than carrots
Spirulina advantages

• Algae are two-thirds of the Earth’s biomass.
• Spirulina thrives in alkaline lakes where it is difficult or impossible for other microorganisms to survive.
• Algae can double its biomass every 2 to 5 days.
• Spirulina is one of the world’s best oxygen producers.
• Productivity breakthrough yields over 20 times more protein than soybeans on the same land area, 40 times corn and 400 times beef.
• Spirulina protein uses 1/3 the water as soy, 1/5 as corn, and only 1/50 the water needed for beef protein.
Spirulina benefits

• Increase anti-viral activity.
• Lower cholesterol.
• Reduce risk of cancer.
• Stimulate the immune system.
• Reduce kidney toxicity.
• Build healthy lactobacillus.
• Improve wound healing.
• Eliminate malnutrition.
• Reduce radiation sickness.
• Let food be your medicine and medicine be your food
  • (Hippocrates, 460 – 377 BC)
Spirulina utilization

- Commercial cultivation
- Industrial use
- Human nutrition and food
- Animal feed
SPILA products

Spirulina with honey
Spirulina in chocolate
Superfood products
Patented applications

www.spila.lt
**Spilamix feed additives**

**SPILAMIX** is a unique feed additive for dairy cows with *Spirulina* that improves the functions of animal’s organism and stimulates its productivity.
SPILAMIX features and benefits

• promotes milk yield increases (up to 6.5 kg of milk cow / day);
• has a positive effect on milk quality, reduces the number of somatic cells up to 26%;
• improves the animal's digestive and metabolic processes (up to 5.2%) and helps assimilate some trace elements;
• strengthens resistance to diseases (i.e., mastitis);
• increases the quantity of erythrocytes (up to 19.3%), hemoglobin (up to 20.3%) and hematocrit (62.4%) in the blood, thus reducing the number of leucocytes (up to 39.3%);
• is a high quality product that is free of harmful chemicals and side effects.
SPILAMIX net income in the dairy farms (EUR), net of product cost

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Minimum advantage (milk procurement price 0.2 EUR/l yield increase 3.9 l/cow)

Maximum advantage (milk procurement price 0.35 EUR/l yield increase 6.5 l/cow)

This represents from 50% to 400% net return on investment per day
Partnership and co-operation

- Expanding natural nutrition rich product line and its distribution worldwide
- Looking for further research partners
- Cultivation with ingredient enrichment
- Breaking cell for vital elements
- Any other ideas of effective algae use
References and thanks to

LITERATURE:

1. Belay A. (2001) The potential application of Spirulina (Arthrospira) as a nutritional and therapeutic supplement in health management, J of Am Nutr Assoc (JANA);