



"SAFE FEED for SAFE FOOD"

JA FARMS ASIA PACIFIC, INC. Offers White Biotechnology Products for the Formulation of Safer Feeds for Safer Foods

The global challenge nowadays in food production is to meet the need of the ever-increasing human population through sustainable agriculture without compromising the respect of the environment. The necessity of providing quality and safe feeds for safe foods is embraced by the JA Farms Asia Pacific, Inc., through the adaptation and distribution of White biotechnology products in the animal industry.

The United Nations Convention on Biological Diversity defines biotechnology as:

"Any technological application that uses biological systems, living organisms, or derivatives thereof, to make or modify products or processes for specific use." Biotechnology is deemed as one of the important tools in creating sustainable development in various industries. There are several branches of biotechnology where a series of terms were generated to identify each:

Blue biotechnology is used to describe the marine and aquatic applications of biotechnology, but its use is relatively rare.

Green biotechnology is equated to agricultural processes. This type of biotechnology deals with the use of environmentally-friendly solutions as an alternative to traditional agriculture, horticulture, and animal breeding processes. Examples are transgenic plants.

Red biotechnology pertains to medical processes. Some examples are the design of organisms to produce antibiotics, and the engineering of genetic cures through genetic manipulation. Red biotechnology is concerned with the manufacture of medically valuable macromolecules, such as therapeutic proteins and vaccines

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White biotechnology on the other hand, is commonly known as industrial biotechnology or even environmental biotechnology. It is the modern use of living organisms to make industrially useful products or processes for the sustainable production of biochemicals, biomaterials and biofuels from renewable resources, using living cells and/or their enzymes. White biotechnology is environmentally sustainable because it generates cleaner processes with minimum waste generation and energy use and it creates products that are more biodegradable.

A crucial tool of the 21st century to meet the challenges of the different industries, white biotechnology taps the use of enzymes and microorganisms for various industries, including nutrition, animal feeds, food, paper, pulp, textiles, cosmetics, pharmaceuticals, medicine, waste management and specialty chemicals.

White biotechnology has a lot to offer to our society in terms of green processes. The following are the 12 Principles of Green Chemistry/ Processes:

1. Prevent waste.
2. Design of safer chemicals and products.
3. Design of less hazardous chemical syntheses.
4. Use of renewable feedstocks.
5. ***Use of catalysts, not stoichiometric reagents (e.g. enzymes)***
6. Avoid chemical preservatives.
7. Maximize atom economy.
8. Use of safer solvents and reaction conditions.
9. Increase energy efficiency.
10. Decide chemicals and products to degrade after use.
11. Analyze in real time to prevent pollution.
12. Minimize the potential for accidents.



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Activities and opportunities in White biotechnology are rapidly growing due to recent breakthroughs in genomics, molecular genetics, metabolic engineering, and catalysis. The optimization of cells as micro-factories for important products are done with respect to productivity, safety and minimal environmental load.

Industrial/white biotechnology has the following benefits:

***PROFIT: ECONOMIC BENEFITS** (sustainable creation of products and processes)*

***PLANET: ENVIRONMENTAL BENEFITS** (sustainable and cleaner production processes)*

***PEOPLE: BENEFITS FOR SOCIETY** (Conservation of the natural resources and maintenance of the environment for future generations)*

JA Farms Asia Pacific, Inc. joins the generation that facilitates and supports the promotion of public awareness regarding the benefits derived from White biotechnology. Likewise, *JA Farms Asia Pacific, Inc., offers to the animal industry choices of white biotechnology products like an array of feed enzymes and all-natural yeast-based products that support green processes for the creation of safer feeds for animals that will provide safer and healthier meat and meat products to consumers. At JA Farms Asia Pacific, Inc. core is the principle of working in harmony, rather than in conflict, with the natural world. JA Farms Asia Pacific, Inc. therefore joins the industrial sector, the government, research communities, academe and the consumers in building and promoting white biotechnology as the cornerstone of our future bio-products and bio-processes deemed to fulfill sustainability in production without compromising the environment same with health and wellness of humans and animals.*

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