Microbial Technology for Applications in Agriculture and Animal Husbandry

This invention harnesses the power of nature to help animals in the digestion and absorption of food, leading very efficient food uptake and eventually very little waste expelled. It comprises of a consortium of microbes customised for specific applications such as water treatment, antiseptic, anti-odour and growth performance enhancement in the agriculture and animal husbandry industry. These microbes secrete a cocktail of organic enzymes that are very effective in breaking down organic food wastes; proteins and fats into simple sugars and organic fertilisers. This process does not produce foul odours and prevents pests from propagating in the composting heap. Trials have been successfully conducted with proprietary microbial mix formulas.

**Potential Applications**

In agriculture, animal husbandry and waste water management industries microbes can be formulated to:

- Enhance growth performance
- Accelerate breakdown of organic wastes such as proteins and fats
- Provide anti and pest repellent properties
- Erradicate nematodes in soil

**Customer Benefits**

In the animal husbandry sector, animal farmers will benefit from lower mortality rates due to illness, faster growth and improved feed conversion ratio.

In the agriculture sector, planters will also see faster growth in crops. The soil quality continues to improve rather than degrade with the use of chemical fertilisers. This technology can be also used to remediate denuded soil.

**Market Trends and Opportunities**

The total global market for microbes and microbial products was worth more than $144 billion in 2010. The 2011 market is projected to exceed $156 billion, and, by 2016, $259 billion, reflecting a 10.7% projected compound annual growth rate (CAGR) between 2011 and 2016. The microbial products market was worth more than $114 billion in 2012 and is expected to be more than $130 billion in 2013 and $174 billion by 2018, a CAGR of 6%. The market for microbes totaled $3.3 billion in 2012. This market is projected to approach nearly $3.6 billion in 2013 and nearly $5.2 billion in 2018 with a CAGR of 7.7%. The value of the agricultural microbials market alone is projected to increase to $4,456.37 million by 2019 at a CAGR of 15.3% from 2014. In this report, the agricultural microbials market is segmented by type, crop type, region type and analyzed in terms of value ($million).

**Technology Features & Specifications**

The technology comprises of formulation of mixed microbial loads that secrete a cocktail of organic enzymes tailored to treat sludge in wastewater, repel insects from crops, compost organic wastes etc. Formulations can be used as simple spray applications and microbes take anywhere between 2 to 6 weeks to produce desired effects. The following features and specifications have been tested:

- Organic deodarant: By increasing load of photosynthetic microbes and other organic enzymes, this formula is able to accelerate the breakdown of organic substances ab initio, thus depriving bacterial activities that causes foul odours
- Composting enzyme: Enzymes break down organic food wastes; proteins and fats into simple sugars and organic fertilisers without foul odors
- Organic wastewater enzyme: Formulated to treat water contaminated with organic wastes and bring down levels of BOD in water
- Oil & grease enzyme: Treats water contaminated by oil, discharges from kitchen’s grease traps. BOD, COD and SS reduces accordingly
- Bio-degradeable pest repellent: Non GMO Bacillus thurigienisis strain in extracts from wood vinegar, molass, chillies, garlic, chitosan diatomide
- Probiotices to enhance growth performance
- Concoctions of bioenzymes as eco friendly alternative to chemical fertilisers

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