Xcelbio (A) enhancement of bark composting

Summary

The addition of Xcelbio (A) to the bark composting process resulted in improvements to process and the final product. The following effects were measured during trials conducted at "Gromed" a producer of composted bark;-

- Reduction in composting period by 70%. From 120-150 days to 31-40 days.
- Consistent and rapid establishment of the composting process.
- Even composting throughout the stacks.
- Consistent attainment of higher than "normal" temperatures within the stacks, as well as higher temperatures closer to the surfaces.
- A final product with a neutral pH and low organic acid content.

Based on the above effects the following benefits can be realized by the use of Xcelbio (A) technology in the bark composting process;-

- Consistent product quality, hence better performance in use.
- Predictable composting.
- More rapid response to market fluctuations.
- Reduction in bark inventory on the composting yard. Increased capacity of the composting yard.
- Guaranteed elimination of weed seeds and nematodes due to high temperatures reached throughout the stacks.

For sales and technical enquiries contact: infoxcelbio@gmail.com

Xcelbio (A) enhancement of bark composting

Background

Composted bark products are used widely in the seedling and horticultural industry. Further uses are coming to the fore such as top-dressing on golf courses, sports fields and gardens as well as capping material in mushroom production.
The production of composted bark is more of an art than a science and is, typically, very unpredictable.
Anaerobic bacterial activity can lead to the production of undesirable chemicals (acids) that cause major problems in downstream seedling production.

The capabilities of Xcelbio (A) technology to function effectively in non-ideal environments could result in significant benefits to the bark composting industry. The addition of this technology to the waste bark of timber operations in the Czech Republic showed a major reduction in the processing period from years to months.

Gromed processes a mixture of bark from pine, gum and wattle trees mainly produced for the paper industry. The disposal of the bark poses a major problem to this industry. Bioenhancement is affected by introducing a solution of naturally occurring Crearchaeota microorganisms. The solution is produced on site by the fermentation of a natural substrate and consists of a range of archaea, which modify the behaviour of micro-organisms present in the system and which are acclimatised to the environment and substrate present.

Description of trials Xcelbio (A) production

The solution was produced on site by the “fermentation” of a proprietary substrate in a catalyst production unit (CPU). Xcelbio (A) was removed from the CPU by a continuous flow of
water, this stream was further diluted and stored in a 15000 litre tank. The solution was delivered to the bark via the wetting water pump suction, when operating with the normal number of hoses about 12000 litres of water was delivered of which 40% came from the storage tank.
The Xcelbio (A) solution is very dilute with organism concentrations of the order of 109 per ml.

For sales and technical enquiries contact: infoxcelbio@gmail.com

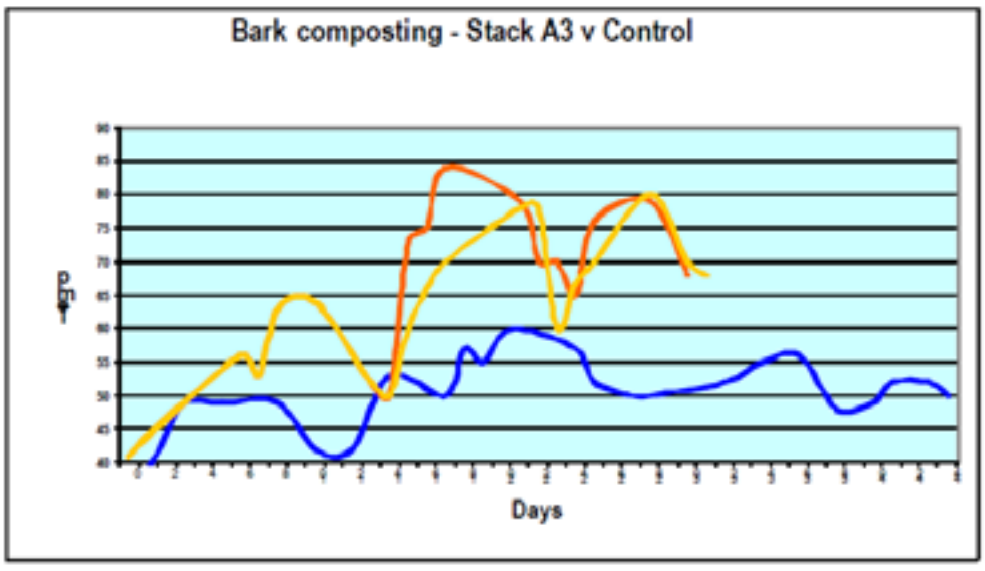
Natural solutions for man-made problems

Xcelbio (A) Enhancement of Bark Composting

Trial 1 (Stack A3)

350 m^3 of mixed bark was used. The bark was pre-wetted as normal using plain irrigation water, 4 kg of lime and 4 kg of urea per m^3 of bark were added prior to stack building. The Xcelbio (A) solution was added to the bark during stack building and during each turning of the stack. The amount of water/solution added is assessed according to the appearance of the bark. The more heat generation the more evaporation hence all treated stacks required more water than usual.

The temperatures of the stacks were monitored by thermometers inserted at various positions in the stacks. When the temperature (and hence bacterial activity) was judged to have peaked the stack was turned. On turning the stack was rewetted to replace lost moisture using the mixture of irrigation water and Xcelbio (A) solution. A control stack (D4) was monitored and turned at the same frequency as the test stack.
The stack was split into two on the fourth turn half continuing to be wetted and the other just turned. From visual observation of the steam plumes it was obvious that the wetted stack continued to produce much more heat than the "dry" stack. The fact that the temperatures remained similar is due to the heat removed as steam.



For sales and technical enquiries contact: infoxcelbio@gmail.com