

## Effects of Bokashi

Microorganisms, such as bacteria and fungi, found in our bokashi process play a crucial role in the nitrogen cycle by facilitating processes like nitrification and denitrification.

1. **Nitrification:** Nitrifying bacteria convert ammonium ( $\text{NH}_4^+$ ) into nitrite ( $\text{NO}_2^-$ ) and then further into nitrate ( $\text{NO}_3^-$ ). This process makes nitrogen more available to plants since they can easily absorb nitrate through their root systems.
2. **Denitrification:** Some microorganisms, known as denitrifying bacteria, convert nitrate ( $\text{NO}_3^-$ ) back into nitrogen gas ( $\text{N}_2$ ), releasing it back into the atmosphere. This process is essential for balancing the nitrogen levels in the soil and preventing excessive accumulation of nitrates, which can be harmful to the environment.

### **Plant Yield and Quality:**

- increases crop yields and quality
- biofertilization, biocontrol and biostimulation

### **Soil Quality:**

- revitalises and enhance soil quality
- high C:N ratio
- promotes the microorganisms activity (increasing the soil aggregates)
- increases the soil fertility, nitrogen concentration and its availability (through the organic matter degradation)
- stabilizes of soil organic matter and reduces the presence of harmful heavy metal ions - increases soil's nutrient availability reducing reliance on synthetic fertilizers

### **Plant health:**

- pesticides substitutes → protects plant against harmful chemical residues, inhibits of fungal infestation and other diseases, modifies the plant's immune response
- stimulates the plant defences
- limits the growth and development of phytopathogens