

## Noninvasive Assessment of Soil Microbial Activity

**Track Code:** 2020-RAHI-68806

**Categories:**

- Agriculture

**Keywords:**

- Agriculture
- Soil Health
- Soil Monitoring

Researchers at Purdue University have developed a new method to quantify activity and amounts of soil bacteria. This technique is more accurate and sensitive than traditional bacterial population sensing methods; only 0.1-1% of soil bacteria can be cultured in the laboratory. The Purdue researchers' method uses electrical impedance monitoring to assess the bacteria's rate of degradation of cellulose acetate, a biodegradable polymer. A decrease in the impedance measurement indicates degradation of cellulose acetate and an increase in the amount of bacteria. This non-invasive, real-time, in situ approach easily interfaces with wireless data acquisition modules to provide soil health information that the agricultural industry can use to forecast crop production and soil maintenance needs

**Technology Validation:** The researchers tested the method with *Pseudomonas aeruginosa* bacteria, a bacterial species commonly found in soil.

**Advantages :**

- Non-invasive
- Real-time
- In situ

**Applications :**

- Soil monitoring

**People:**

- Rahimi, Rahim (Project leader)
- Waimin, Jose

**Intellectual Property:**

**Application Date:** July 6, 2022  
**Type:** Utility Patent  
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