



*The Microbe's Best Friend!*

## SOIL BIOLOGICAL DIVERSITY RESEARCH SUMMARY

### OBJECTIVE

The present analyses were performed to assess the effects of **A+ Soil Amendment** on the soil microbiome through the identification, detection and measurement of phyto-beneficial microorganism population in the soil.

### RESEARCH DESCRIPTION

The **Mexican Research Center on Food and Development (CIDA)** compared the presence and population of phyto-beneficial microorganisms per gram of soil treated with **A+** versus control. The analyses were conducted in two fields, one growing tomatoes and one growing table grapes. Soil samples were analyzed by means of dilution and subsequent plating on selective and semi-selective culture media for fungi and bacteria.

### SOIL ANALYSIS I: Tomato Farm – Sinaloa, Mexico

Soil Sample	Aerobic Bacteria	Anaerobic Bacteria	Bacillus sp	Pseudomonas Fluorescens	K-Solubilizing Bacteria	Diversity Index
<b>A+</b>	4,400,000	11,000,000	12,800,000	890,000	40,000	7.27
<b>Control</b>	3,118,000	21,733,000	6,400,000	121,000	6,666	5.94

The analysis showed significant improvement of the microbiome through higher counts of beneficial microorganisms and a **22%** higher biological diversity index in the soil treated with **A+**. Remarkable increases were observed in the following phyto-beneficial microorganism population:

- 41% in aerobic bacteria
- 100% in Bacillus sp
- 600% in Pseudomonas fluorescens
- 500% in potassium solubilizing bacteria

### SOIL ANALYSIS II: Table Grape Farm - Sinaloa, Mexico

Soil Sample	Aerobic Bacteria	Anaerobic Bacteria	Bacillus sp	Pseudomonas Fluorescens	K-Solubilizing Bacteria	Diversity Index
<b>A+</b>	8,200,000	220,000	3,633,333	560,000	1,533,333	2.24
<b>Control</b>	2,900,000	133,333	2,166,667	0	1,033,333	1.17

The analysis was conducted in an environment with inherent low indicators of organic matter and biological diversity. In addition to the significant increase in all phyto-beneficial microorganism counts, the study showed an increase of **100%** in organic matter content – from 0.25 to 0.5 – while the biological diversity improved by more than **90%** in the soil treated with **A+**.

### CONCLUSION

Regardless of the different initial profiles, the soil treated with **A+** showed higher counts of phyto-beneficial microorganisms and greater biological diversity. Alongside the positive effects in the soil, farmers also benefited from yield increase and improved crop quality. Increases in microbial populations in the soil are known to improve fertility and porosity, enhance seed germination and promote primary nutrients in the host plants.