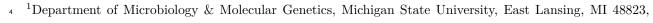
1	Resources but not soil particle size influence ammonia	oxidizing
2	communities	
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15 Key words: Soil particles, microbiome, AOA, AOB, X-Ray CT

16 Abstract

17 Introduction

- 18 We hypothesized that the co-occurrence of ammonia oxidizing archaea (AOA) and ammonia oxidizing
- bacteria (AOB) in soil environment is due to the soil chemical and size heterogeneity which they preferentially
- $_{\rm 20}$ $\,$ and selectively occupy.

- Materials and Methods
- 22 Rhizotron setup
- 23 Soil collection and preparation
- 24 DNA isolation and sequencing
- ₂₅ Determining the soil particle surface area
- ²⁶ Amplicon sequence analysis
- 27 Statistical analysis

Results

31

- $_{29}$ We found that:
- 1. Microbial richness is influenced by the soil particle size.
- 2. Chemical properties of soil particles are very different and are site dependent.
- 3. Ammonia oxidizing communities are influenced by the ammonium concentrations and not soil article sizes.
- 4. Richness of AOA>AOB.
- 5. Soil particle surface area.

37 Discussion

- 38 Acknowledgments
- 39 References