

# PrimeWay Soil DNA Extraction Kit (KIT-9060-10/50/250)



**PrimeWay Soil DNA Extraction Kit** is a reliable kit that is used to isolate genomic DNA from various type of soil sample, manure & water sample.

## Soil

- General soil
- Low microbial diversity soil

## Manure

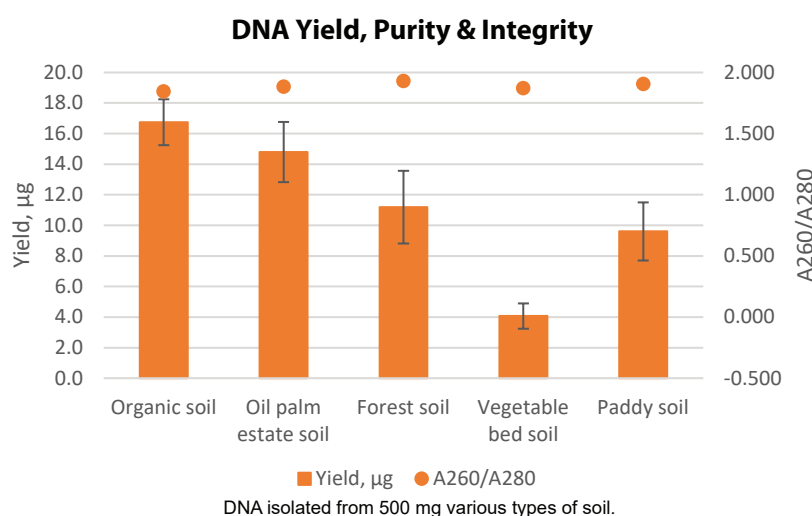
## Water Sample

## DNA Clean-up

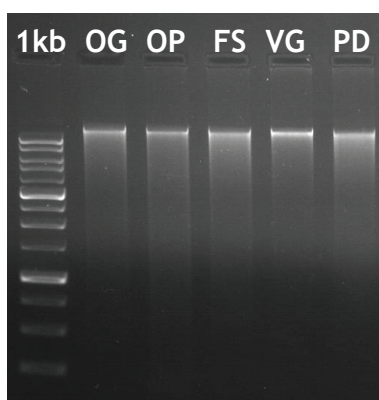
The kit features a blend of beads in different sizes, ranging from 0.1 mm to 4 mm, to maximise the extraction efficacy of bacterial and fungal DNA. The abundance of humic substances and pigments can be efficiently removed, ensuring worry-free downstream processes such as PCR. The purified DNA is suitable for PCR, Southern blot, enzyme digestion, amplicon sequencing, etc.

## Soil

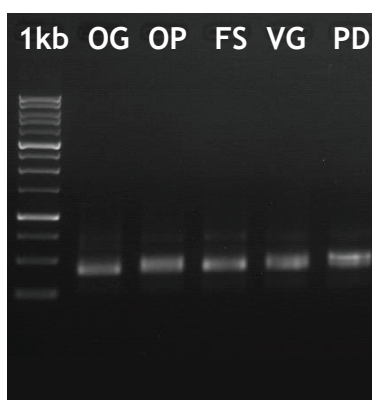
## Performance Review



## PCR Amplification



50 ng of DNA are analysed with 1% agarose gel.



Successful PCR amplification (ITS2) indicates the extracted DNA is free from PCR inhibitors. 1 µL PCR product is analysed with 1% agarose gel.

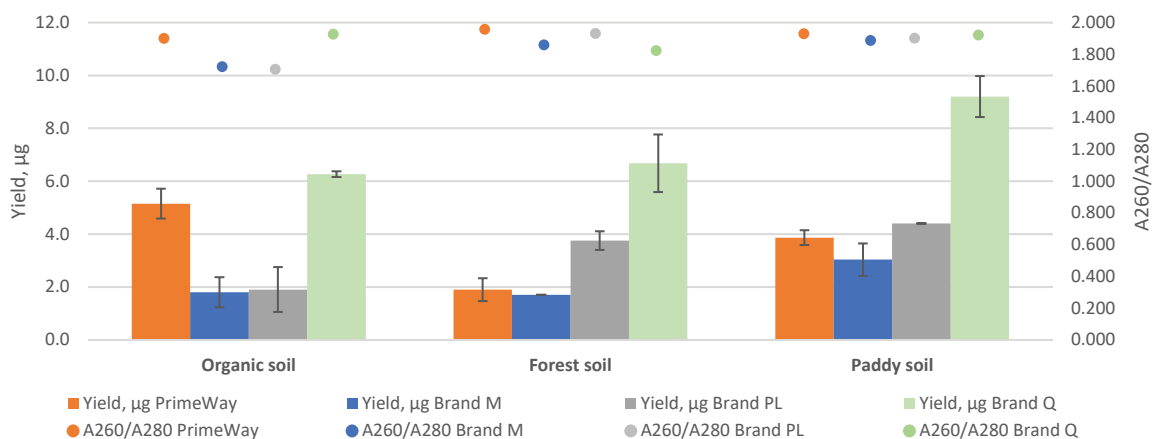
OG: Organic soil  
OP: Oil Palm estate soil  
FS: Forest soil  
VG: Vegetable bed soil  
PD: Paddy soil



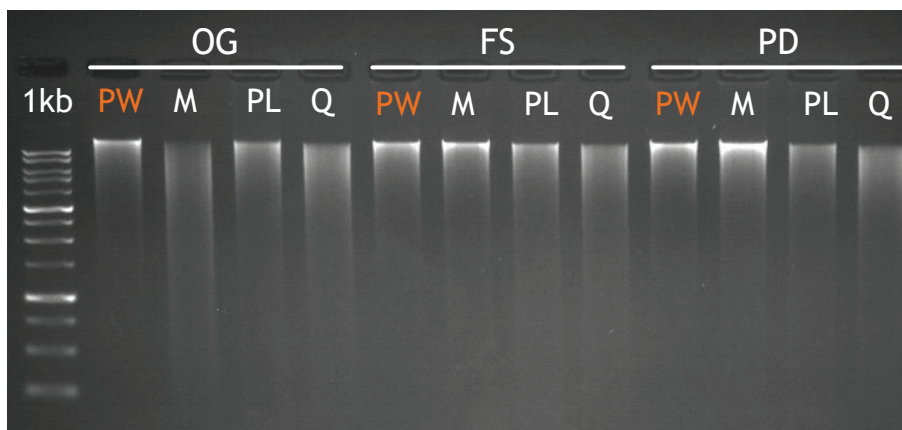
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## Comparison Data

### DNA Yield, Purity & Integrity for General Soil



DNA isolated from 200 mg soils.

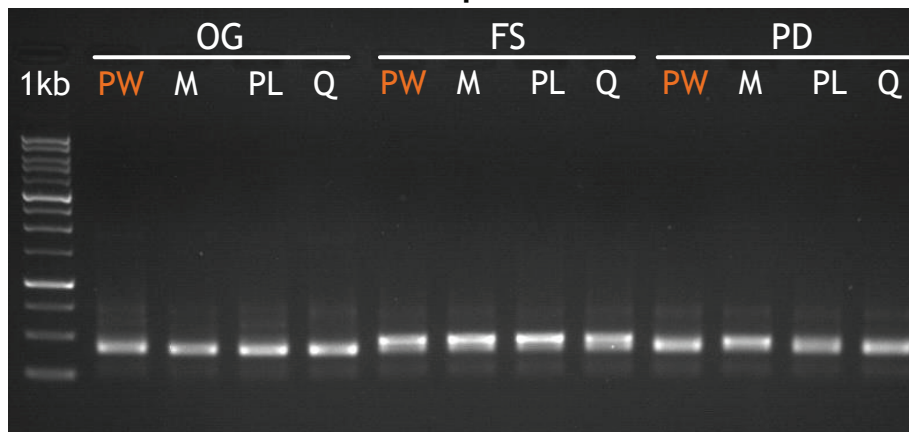


50 ng of DNA are analysed with 1% agarose gel.

**Soil Type**  
OG: Organic soil  
FS: Forest soil  
PD: Paddy soil

**Brand**  
PW: PrimeWay  
M : Brand M  
PL : Brand PL  
Q : Brand Q

### PCR Amplification

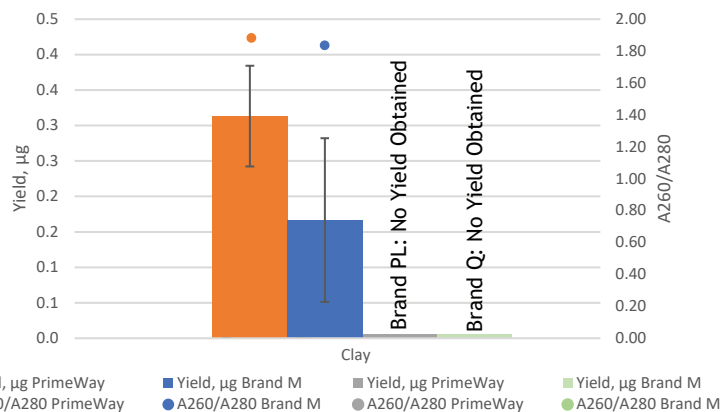


Successful PCR amplification (ITS2) indicates the extracted DNA is free from PCR inhibitors.  
1 µL PCR product is analysed with 1% agarose gel.



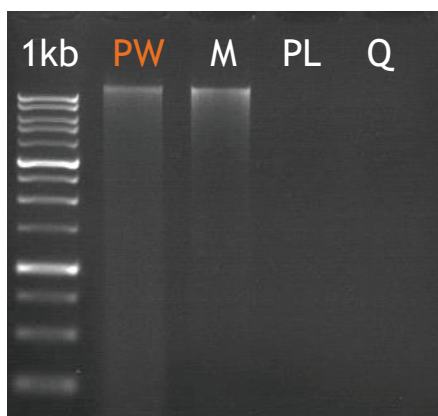
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## DNA Yield, Purity & Integrity for Low Soil Microbial Diversity

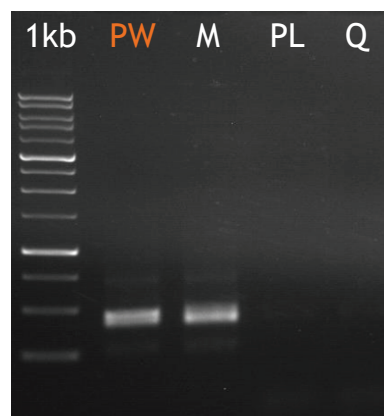


DNA isolated from 200 mg clay. PrimeWay kit able to extract DNA from soil with low microbiome diversity.

## PCR Amplification



50 ng of DNA are analysed with 1% agarose gel.

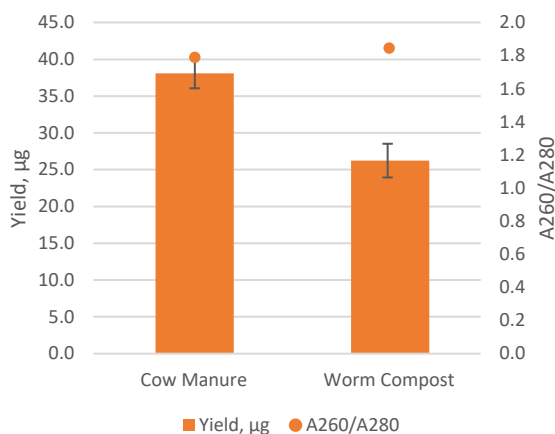


Successful PCR amplification (ITS2) indicates the extracted DNA is free from PCR inhibitors. 1 µL PCR product is analysed with 1% agarose gel.

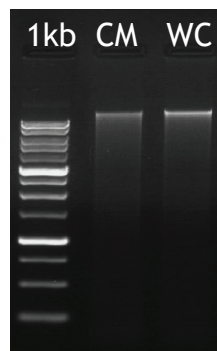
**Brand**  
PW: PrimeWay  
M : Brand M  
PL : Brand PL  
Q : Brand Q

## Manure Performance Review

### DNA Yield, Purity & Integrity



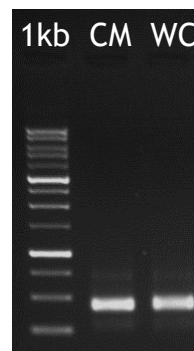
DNA isolated from 500 mg of cow manure & worm compost.



50 ng of DNA are analysed with 1% agarose gel.

CM: Cow Manure  
WC: Worm Compost

### PCR Amplification



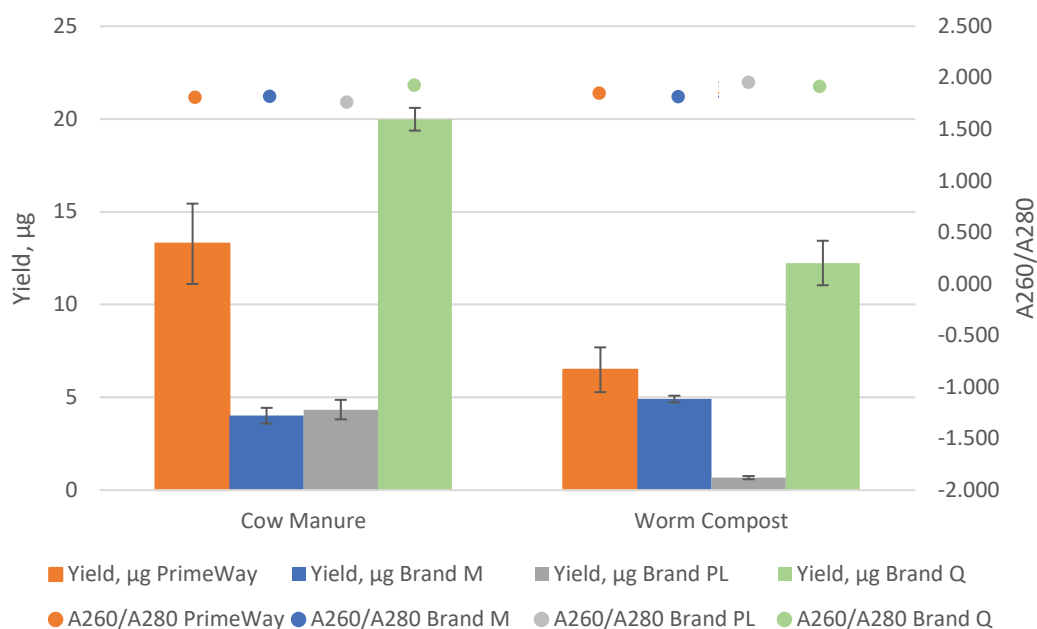
Successful PCR amplification (ITS2) indicates the extracted DNA is free from PCR inhibitors. 1 µL PCR product is analysed with 1% agarose gel.



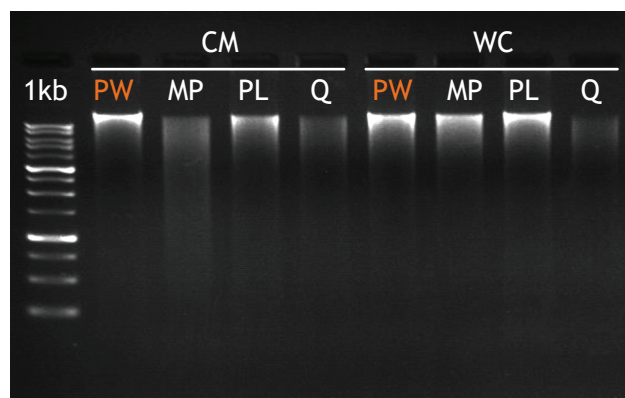
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## Comparison Data

### DNA Yield, Purity & Integrity for Manure

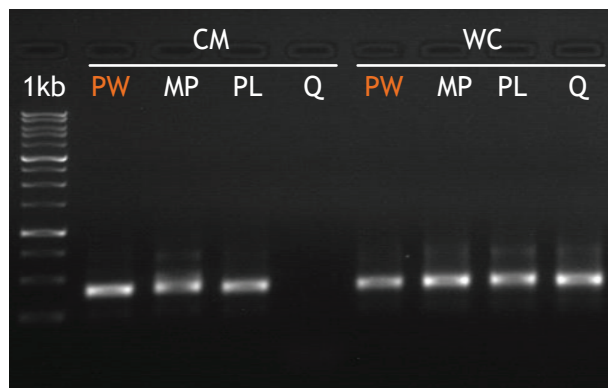


DNA isolated from 100 mg of cow manure & worm compost.



50 ng of DNA extracted are analysed with 1% agarose gel.

### PCR Amplification



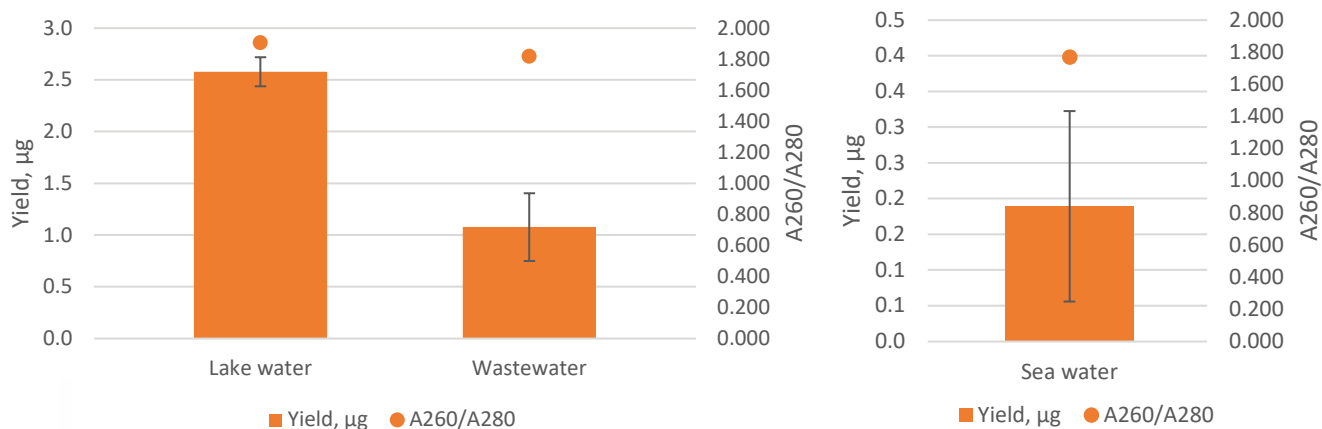
Successful PCR amplification (ITS2) indicates the extracted DNA is free from PCR inhibitors. 1 µL PCR product is analysed with 1% agarose gel.



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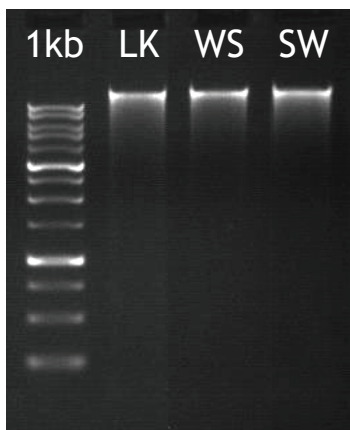
## Water Performance Review

### DNA Yield, Purity & Integrity

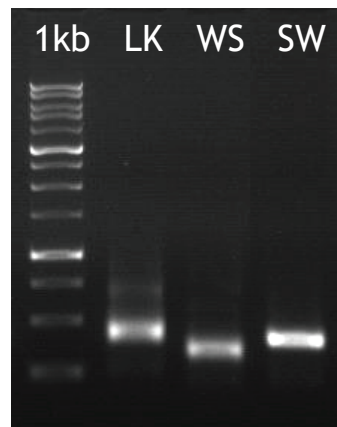


DNA isolated from various type of water sample with 0.2 µm membrane filter.

### PCR Amplification



50 ng of DNA from water samples are analysed with 1% agarose gel.



Successful PCR amplification (ITS2) indicates extracted DNA is free from PCR inhibitors. 1 µL PCR product is analysed with 1% agarose gel.

#### Water Sample Type

LK: Lake water  
WS: Waste water  
SW: Sea water

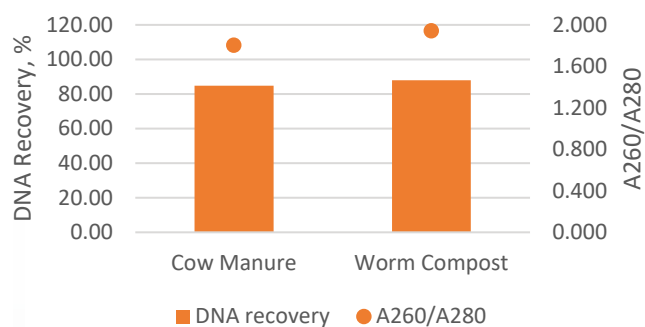


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## DNA Clean-up

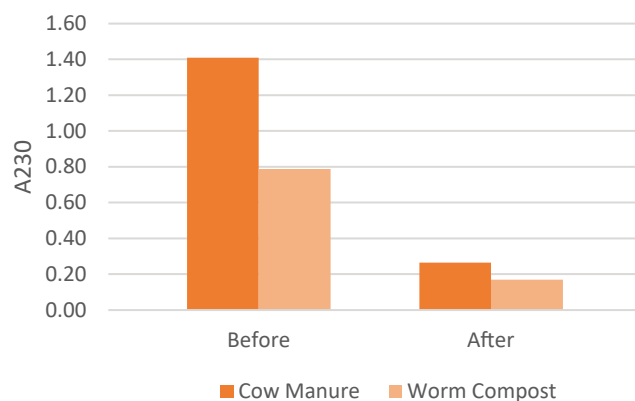
## Performance Review

### DNA Recovery & Purity after DNA Clean-up



DNA clean-up of 30  $\mu$ L DNA containing pigments.

### Absorbance 320, Humic Acid Detection

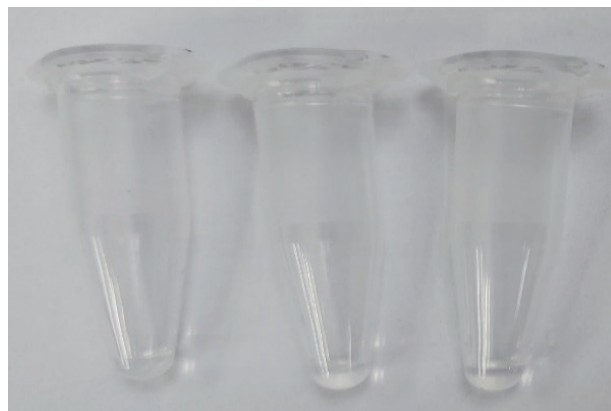


### Before



Light yellowish pigment is observed in the DNA

### After



The pigments in the DNA are removed

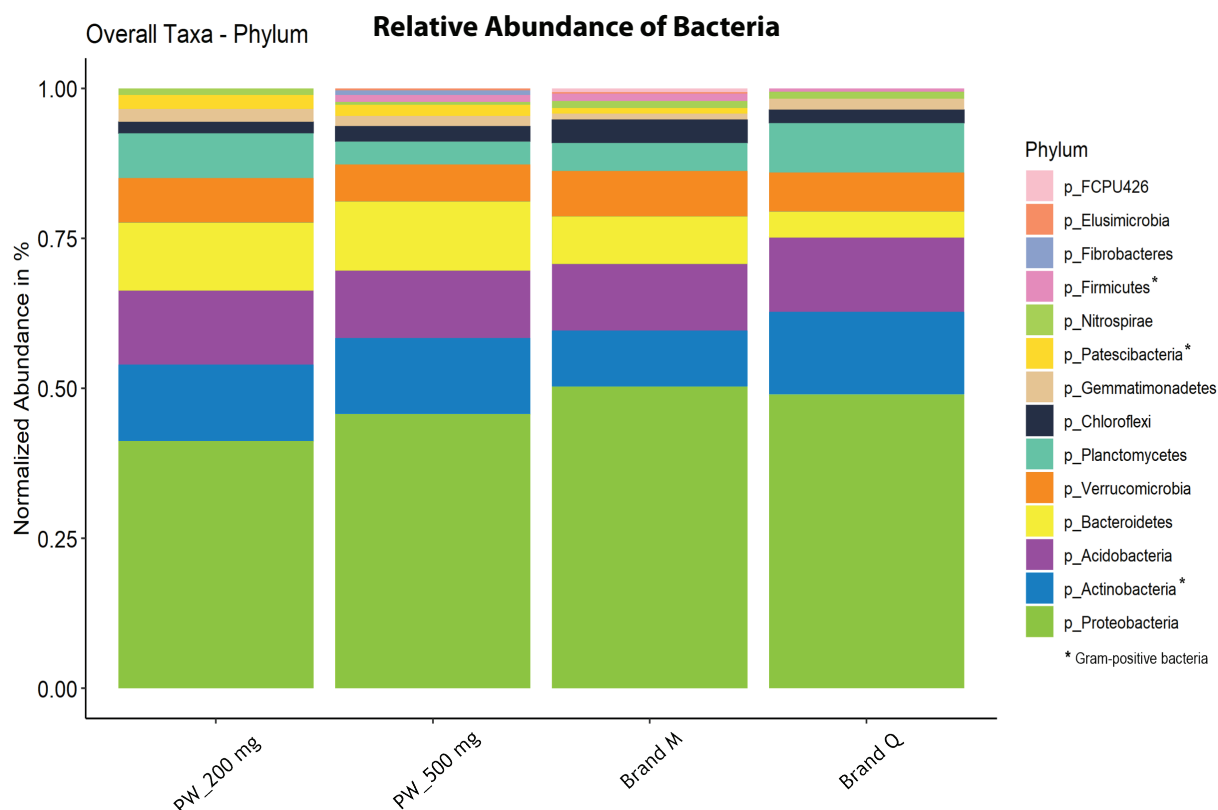


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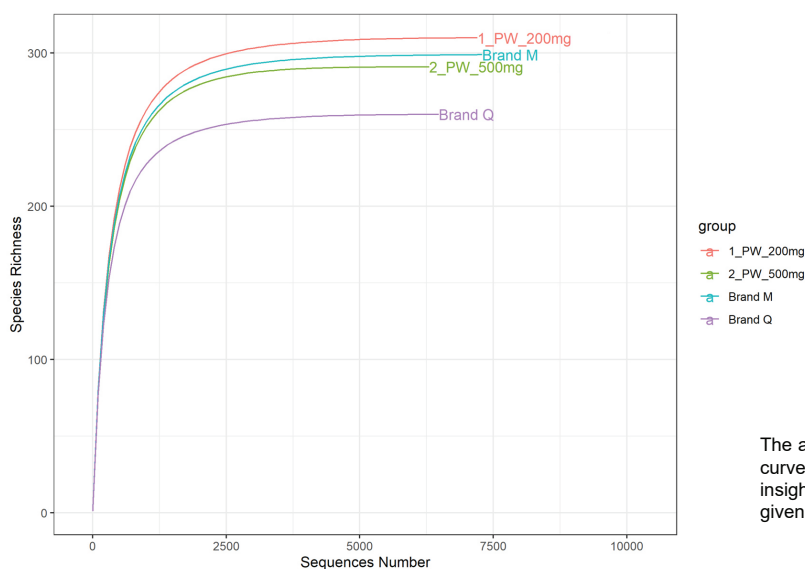
## NGS Result

## Comparison of 16S Microbial Profiles



Comparison of 16S microbial profiles from soil, extracted using PrimeWay and other brands of soil DNA extraction kits. V4 region was amplified from the extracted DNA and sequenced on the Illumina Miseq Platform. Qiime2 pipeline was used to analyse the data and the results are shown in the figure above. The relative abundance of bacteria is classified in phylum-level.

## Rarefaction Curves



The alpha diversity is presented using rarefaction curves. Rarefaction curves is used to provides insight on the number of species detected at the given sequencing depth.



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