CIC & MG Corporation Partnership Project

Malaysia University, Lab Tour Photos and Coffee Leaf Sample Preparation

May 7th, 2018

MG Corporation

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Our Partnership values

To Succeed we must always be striving to know and do the right things at all times. As partners it is important that we have a set of values which encourage us to behave ethically, with integrity and mutual respect.

- Teamwork - *We're better together*

Success comes from collaboration: getting the best out of each other and supporting one another.

- Trust - *Confidence in each other*

We earn and give trust through our actions. We make promises and keep them, are open and honest about what we do.

- Innovation - *Better every day*

We innovate every day - in our product technology, our operations, and the way we work. We create solutions for our society and customers through small changes as well as major breakthroughs.

- Precision - *Excellence always*

We relentlessly pursue excellence, are thorough and diligent in what we do and always expect the best of each other.

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University Technology Malaysia, UTM

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Sample Preparation_1

1. The leaves must be cleaned properly prior to testing
   - Remove all unwanted particles from the leaves
2. Dry the samples using oven at 103°C for minimum of 8hrs
   - Oven dry the samples before grinding.
   - The oven needs to be able to attain and hold temperature of 103°C. This is rather important for an accurate reading.
   - The time to dry is typically about 8hrs for 100g samples.
3. Grind the samples as shown above
4. Acid digestion of the leaves
   - Nitric acid is rarely used alone. It is best used in combination with sulfuric acid for sample digestion.

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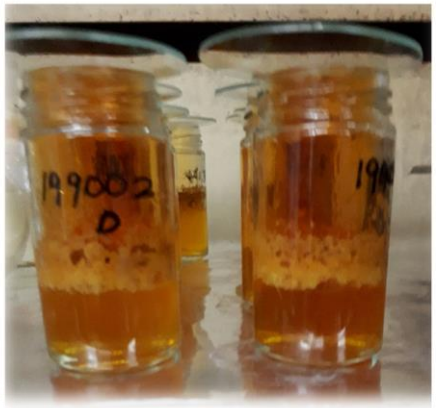
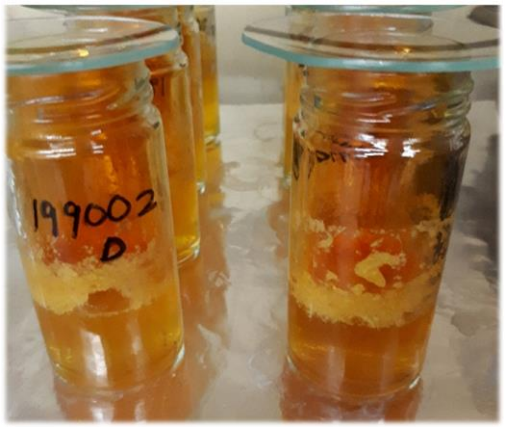
Sample Preparation_2

Acid Digest- 30min

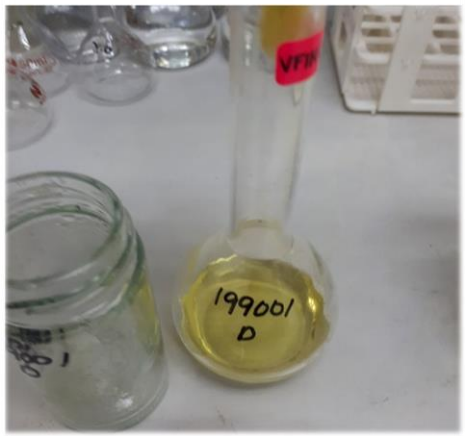


Acid Digest- 60 min



Acid Digest - 120 min

Filtrate- Clear Liquid



Filtering Digested Sample

Acid Digest- 120 min (close-up)

- Care should be exercised and the literature consulted before attempting to use nitric acid in combination with other acids or organic sample digestions.

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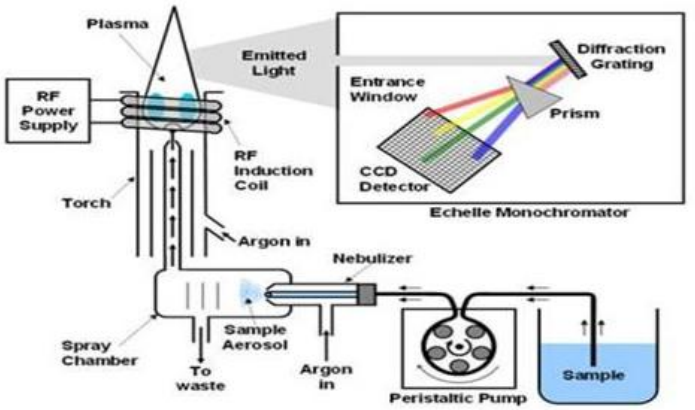
Sample Preparation_3

Residue of Digest

Disposed

Clear Solution-Ready for ICP Analysis



Leaf nutrient Target Elements

- Nitrogen , Phosphorus , Potassium , Calcium, Iron,
- Boron , Zinc , Manganese , Aluminum

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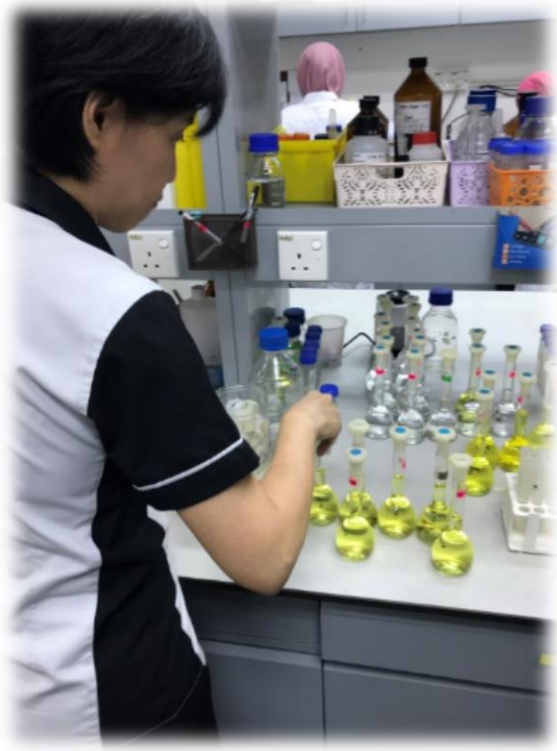
Lab Tour and Coffee Leaf Samples

UTM Professor Shree

Coffee Leaf Samples



Chemist checking samples

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Lab Tour and Analysis Team

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Analysis Equipment

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