

ASSESSMENT OF THE GENETIC DIVERSITY OF PHILIPPINE COFFEE (*Coffea* spp.) USING SIMPLE SEQUENCE REPEATS (SSR) MARKERS

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INTRODUCTION

The Philippines is one of the few countries that produces four (4) types of commercially-viable coffee: Arabica, Liberica, Excelsa and Robusta.

Due to increase in population, urbanization and promotion of registered and popular varieties, genetic diversity in the country is being threatened.

This is the first genetic diversity analysis in the Philippines using a wide range of coffee accession.

MATERIALS/METHODS

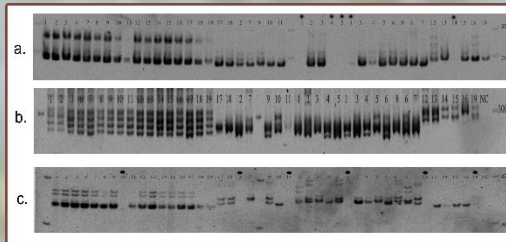
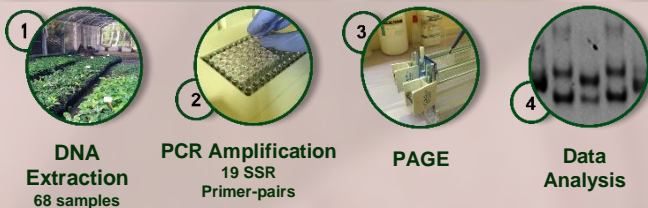


Figure 1: Representative gel generated by using (a) M324, (b) M326 and (c) R268 markers

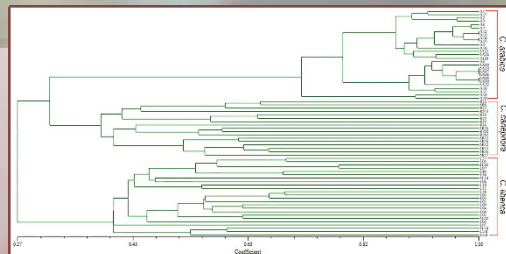


Figure 2: Dendrogram based on 19SSR marker by SAHN clustering using UPGMA

RESULTS/DISCUSSION

- ☪ All 19 SSR markers used showed polymorphism across all species with 128 alleles detected.
- ☪ Polymorphic Information content (PIC) values ranged from 0.30 to 0.90 stating all markers tested were highly informative (PIC>0.5) except for M310 with the least PIC value of 0.30.
- ☪ Three (3) SSR primers namely M324, M326 and R268 were observed to differentiate all coffee species.
- ☪ A graphical representation of UPGMA tree also shows a species differentiation.
- ☪ All samples of *C. arabica* clustered separately as well as *C. canephora* (Robusta).
- ☪ The two (2) groups/varieties of *C. liberica* clustered together given the high genetic similarities between the two supported by the recent re-classification of *Coffea*.

CONCLUSION/PERSPECTIVES

- ☪ Genetic diversity analysis helps in managing the existing collection of coffee in the country.
- ☪ The use of SSR marker is essential in the identification and authentication of coffee at any growth stage of the plant.

REFERENCES

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