DEVELOPMENT OF A PROTOCOL TO EXTRACT QUALITY DNA FROM MAHA ARATTA (*Alpinia galangal* (L.) Sw.) AND RELATED SPECIES

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By

RANASINGHEGAMA ARACHCHILAGE SHANIKA NILMINI RANASINGHE

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ABSTRACT

Medicinal plants are widely used in traditional systems of medicine all over the world. *Alpinia galangal* (L.) Sw. of family Zingiberaceae is one of valuable medicinal plants in traditional medicinal system. The major problem to deal with *galangal* plant is the correct identification from other related species. Due to incorrect identification, the adulteration causes a major issue in medicinal and other herbal products by related species. This research was mainly focused on development of a protocol to extract quality DNA from *Alpinia galangal* and related species that useful to differentiate *Alpinia galangal* from other related species by using DNA barcoding technique. The genomic DNA of *Alpinia galangal* and five related species to *Alpinia galangal*: (*Alpinia calcarata Roscoe*, *Alpinia malaccensis Roscoe*, *Hedychium flavescens Roscoe*, *Hedychium coronariuam Koenig*, *Hedychium coccineum*) was able to isolate by using modified CTAB method, which was optimized by modifying protocols developed for leaves of *Renealmia* L.F. (*Zingiberaceae*) by Jannes (2007) and Sahare and Srinivasu (2012). In developed promising protocol, first leaves were sterilized, weighed and kept at -20^0C for one hour, cut in to small pieces, grind with liquid N_2 and transferred in to preheated buffer 2x CTAB with pinch of PVP. β mercaptoethanol was added. Then chloroform:isoamyl alcohol (24:1) extraction and centrifugation at 13000 rpm were done. After two chloroform:isoamyl alcohol extractions, DNA were left to precipitate at -20^0C for one hour. Then supernatant was removed and wash buffer was added. Then samples were centrifuged at 13000 rpm, and pellets were taken and allowed to dry over night. Finally dry pellets were dissolved in TE buffer. DNA isolation was confirmed electrophoretically and then was quantified concentration spectrophotometrically by 260nm/280nm ratio. Above promising protocol can be used to extract quality DNA from *Alpinia galangal* and related species. Modified and developed protocol takes maximum of four hours for completion of isolation of DNA, which is time saving and cost effective.

(*Key words: Alpinia galangal,* Maha Aratta, Identification, DNA Barcoding, Adulteration)