



**DNA BARCODING FOR THE AUTHENTICATION OF
PHILIPPINE *Antidesma bunius* (L.) Spreng (BIGNAY)
LEAF HERBAL PRODUCTS**

A Research Presented to the
The Faculty of Biological Sciences Department
College of Science and Computer Studies
De La Salle University-Dasmariñas
City of Dasmariñas, Cavite

In Partial Fulfilment of the Requirements for the Degree
Degree of Bachelor of Science in Medical Biology

**VALERIO BENEDICTO F. HERBOSA
JOHN SAMUEL B. TUGADE**

May 2017



ABSTRACT

Antidesma bunius is a plant locally known as bignay, and can be easily found in markets being sold as dried tea leaves or capsules to treat ailments due to its medicinal properties. Unfortunately, there is no standard procedure to authenticate these herbal products, and adulteration of these may lead to complications to consumer health. The purpose of this study was to authenticate the bignay leaf herbal products sold in the market and this was done through DNA barcoding, a taxonomic method that uses a short genetic marker from a standard part of the genome of an organism's DNA for species identification. The universality of plant DNA barcodes *matK*, *rbcL*, ITS, and *trnH-psbA*, were also tested. This study reports successful authentication of four bignay herbal leaf products being sold in the Philippines. Authentication of the herbal products were visualized using the BLASTn and maximum-likelihood (ML) tree construction criterion using *rbcL* as the main DNA barcode, and *trnH-psbA* as a supplementary barcode. Barcode sequences were retrieved for *rbcL* and *trnH-psbA* of four products tested and the results of the study revealed that only two out of four of the products contain different families aside from of Euphorbiaceae. The results of the experiment unraveled the significance of DNA barcoding, which can be proved useful in authenticating herbal products available in the Philippine market, and consumer health will be secured from the undesired effects of adulterated products.

Keywords: Adulteration, *rbcL*, *trnH-psbA*, ITS, *matK*, DNA marker