

**DNA BARCODING: PREPARATION OF RBCL AND MATK
GENOME REGIONS OF *JEFFREYCIA ZEYLANICA* (L.) H. ROB.,
S.C. KEELEY & SKVARLA (ASTERACEAE)**

R.T.N. Wimalaweera^{1*#} and T. Ranathunge²

¹ *Gampaha Wickramarachchi Ayurveda Teaching Hospital, Yakkala, Sri Lanka*

² *Faculty of Science, Eastern University, Chenkalady, Sri Lanka*

**Correspondence E-mail: tharindu123mail@gmail.com, Phone: +94712654532*

#Presenting Author

Abstract: *Jeffreyia zeylanica* (L.) H. Rob., S. C. Keeley & Skvarla, is an endemic Sri Lankan medicinal plant which is commonly observed within the tank cascade systems of Sri Lanka. Recent studies have shown that it contains Vernolactone, a novel compound that mediates significant cytotoxic effects in breast cancer cells and promotes apoptosis and autophagy in human teratocarcinoma cancer stem-like cells. For this study, 200 mg of plant material was collected from a single plant for each of the two DNA markers. The plant was identified with the assistance of medicinal plant experts at Gampaha Wickramarachchi Ayurveda Teaching Hospital (GWATH), Yakkala and Samples were obtained from the herbal garden at GWATH. MatK and rbcL genes are chosen for their variability among species and their relative conservation within a species. The standard CTAB method with few modifications was used for the extraction and purification of DNA. MatK and rbcL genes in the chloroplast genome were amplified using universal primers by PCR (polymerase chain reaction). Two optimized PCR cycle parameters were used. PCR products were purified. Purified PCR products were sequenced and raw sequencing data was edited using Bio Edit software. Galaxy, the web-based platform was used to assemble the forward and reverse reads into contigs. Moreover, BLAST search against the GenBank nucleotide database was conducted to confirm the identity of the obtained MatK and rbcL sequences. It showed a maximum similarity of 100% for matk and 99.3% for rbcL. The PCR-based amplification of conserved regions (*matk and rbcL*) or their combination is commonly employed to establish DNA barcodes for species identification. This case demonstrate the use of DNA barcoding for the identification of medicinal plant materials.

Keywords: BLAST; DNA barcoding; *Jeffreyia zeylanica* (= *Vernonia zeylanica*); MatK; rbcL; Medicinal plant identification