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MOLECULAR DISCRIMINATION OF CEYLON CINNAMON (*Cinnamomum verum*) FROM ITS MAJOR ADULTERANT CHINESE CINNAMON (*C. aromaticum*)

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Cinnamomum verum, also known as true cinnamon, is one of the Sri Lanka's premier exports. However, *C. verum* is regularly adulterated with *C. aromaticum*. Therefore, frequent testing for adulteration is of paramount importance to retain the quality and the reputation of Ceylon cinnamon. Although, these two species can be distinguished morphologically and chemically, there are limitations associated with admixtures in the form of powders or value-added products. In this context, molecular techniques can be applied to discriminate even when the admixtures are from genetically close plant species. Therefore, the objective of this research was to develop a novel genetic assay that can be applied in molecular screening methods. In this regard, sequences of *C. verum* and *C. aromaticum* were retrieved from NCBI for *rbc*L, *mat*K, *trn*L, *trn*L-*trn*F and ITS2 barcode regions, and analyzed using MEGA v7.0. The results indicated that the ITS2 region, having the highest variable site percentage (21.99%), was followed by *rbc*L (0.65%) and *trn*L (0.39%). The lowest values were reported by *mat*K (0.15%) and *trn*L-*trn*F (0%). Therefore, ITS2 and *rbc*L regions were selected as the most suitable barcode regions for primer designing. According to the properties of the designed primers, the ITS2 markers were rejected due to the high SNPs dispersion, that affected the anneling temperature of the PCR reaction. The best-performing *rbc*L primer pair was selected through trial and error, and the nucleic acid sequence of the selected primers for *rbc*L region are Forward - 5′-GAGACTAAAGCAAGTGTTGGATTC-3′ and Reverse - 5′- CCACAATA GAAGTAAACATG-3′. This amplifies a region of 348 bp which covers three distinct SNPs that can be used to discriminate *C. verum* from *C. aromaticum*. These preliminary results indicate that the *rbc*L is the most suitable region for designing primers to be incorporated in the genetic assay to detect adulteration in any commercially available *C. verum* product.

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