Title : Extraction, Chemical composition analysis and application of essential oil from tobacco leaf (*Nicotiana tabacum* L.) type Burley and Virginia

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ABSTRACT

Essential oil extracted from tobacco leaves, derived from waste in the tobacco production process, serves as a significant source of additives for using in fragrance manufacturing. This research investigates the extraction of essential oil from tobacco leaves (*N. tabacum*) of the Burley and Virginia tobaccos by using the hydro-distillation method due to chemicals–free, no contamination, and can be extracted large quantities. The chemical composition of the extracted oil was analyzed using Gas Chromatography–Mass Spectrometry (GC–MS), while the chemical identity was studied with Attenuated Total Reflectance Fourier Transform Infrared Spectroscopy (ATR–FTIR). The results showed that the essential oil extracted from Virginia had a yield of 0.0825%, while the Burley yielded 0.0422%. Chemical composition analysis revealed 16 compounds were found in Virginia oil, accounting for 88.83% of the total peak area and 15 compounds were found in Burley oil, accounting for 86.69% of the total peak area. This analysis was based on a similarity index of greater than or equal to 85% compared to the Wiley W9N11 database. Moreover, the major component in both essential oils was Neophytadiene. The chemical identity study of the essential oils indicated that the spectra of both essential oils exhibited similar characteristics.