



Eugenol and Benzyl Benzoate Chemotypes of Cinnamon (*Cinnamomum verum*) in Sri Lanka

M.R. Prathibhani¹, N.V.T. Jayaprada², R.A.A.K. Ranawaka³, L. Jayasekara⁴,
H. Tamura⁵, S.A. Ranaweera⁶, G. Senanayake⁷, S. Geekiyanage^{7*}

¹ Board of Study in Agriculture, Faculty of Graduate Studies, University of Ruhuna, Matara, Sri Lanka

² Department of Agricultural Technology, Faculty of Technology, University of Colombo, Homagama, Sri Lanka

³ Department of Cinnamon Development, Gunaratna Weerakoon Mawatha, Borakanda, Karadeniya, Sri Lanka

⁴ Department of Mathematics, Faculty of Science, University of Ruhuna, Matara, Sri Lanka

⁵ Department of Applied Biological Sciences, Faculty of Agriculture, Kagawa University, Kagawa, Japan

⁶ Department of Chemistry, Faculty of Science, University of Ruhuna, Matara, Sri Lanka

⁷ Department of Agricultural Biology, Faculty of Agriculture, University of Ruhuna, Mapalana, Kamburupitiya, Sri Lanka

*Corresponding author: sudarshanee@agbio.ruh.ac.lk

The chemical composition of seed-propagated cinnamon is variable. Varieties with distinct chemical compositions for specific purposes are lacking in Sri Lanka. This study aimed to determine the diversity of leaf essential oil composition in selected cinnamon accessions from an established collection at the University of Ruhuna. Eighteen accessions were evaluated in 2018 and 2021 using GC-MS analysis. Eugenol (EU) was the major compound in fifteen accessions, while benzyl benzoate (BB) was the major compound in three accessions. Eucalyptol, linalool, α -caryophyllene, caryophyllene, caryophyllene oxide, α -phellandrene, and cinnamaldehyde were variable in both periods. EU, α -phellandrene, and cinnamaldehyde compositions in 2021 were significantly different ($p < 0.05$) when compared to 2018. A dendrogram was constructed based on 33 chemical variables of eighteen *Cinnamomum verum* accessions in 2021, which produced two clusters at a rescaled distance of 20. Benzyl benzoate-rich accessions KA11 and GB17 were classified into a distinct cluster. Our results confirm that Sri Lankan cinnamon has two distinct chemotypes: one rich in eugenol (EU) and another rich in benzyl benzoate (BB). This finding enables farmers to cultivate specific chemotypes and allows industries to select material suited to their particular needs.

Keywords: *Cinnamomum verum*, Benzyl benzoate chemotype, Eugenol chemotype, GC-MS analysis, Leaf essential oil