

Maturity and variety dependence of bioactive constituents of Ceylon cinnamon (*Cinnamomum zeylanicum* Blume)

Wijeweera A.A.¹, Madhushika S.², Hemalika W.S.², Hettiarachchi S.R.³, Hewage J.W.^{2*}, Jayasinghe G.G.¹ and Wijesinghe K.G.¹

¹National Cinnamon Research and Training Center, Department of Export Agriculture, Sri Lanka

²Department of Chemistry, University of Ruhuna, Matara, Sri Lanka

³Department of Chemistry, The Open University of Sri Lanka, Matara, Sri Lanka

Cinnamon has been given a considerable attention owing to its potential applications in the food and drug industry. Amongst all cinnamon species, Ceylon cinnamon has received priority in the world market due to its special characteristics. In this study, the dependence of the bioactive constituents on maturity of two main asexually propagated Ceylon cinnamon varieties, Sri Gamunu and Sri Vijaya from Palolpitiya, Matara was investigated, while maintaining both genetic and ecological variations constant. Forty-eight samples of bark and leaves from three different maturity stages of cinnamon sticks as over 5, 2-2.5 and 1.5-2 years were analyzed in quartets for the determination of bioactive contents quantitatively. It was observed that barks and leaves of both Sri Gamunu and Sri Vijaya species contained alkaloids, saponins, steroids, phenols, flavonoids, oxalates, and tannins as bioactive compounds. Furthermore, the quantitative analysis for the constituents that imparts greatest health benefits proved that the Sri Gamunu variety is the best (alkaloids: 8%, flavonoids: 2%, saponins: 9%, phenols: 5mgTAE/gFW) out of two varieties with higher percentages of bioactive constituents. The study also revealed that the bark of Sri Gamunu variety with about 2 years of maturity gives the highest contents of bioactive compounds.

Keywords: Ceylon cinnamon, bioactive constituents, maturity, cinnamon bark and cinnamon leaf

Acknowledgments: We thank National Science Foundation, Sri Lanka (NSF) for the funding under the research grant SP/CIN/2016/04 and National Cinnamon Research and Training Center, Sri Lanka.

*Corresponding author: jinasnea@chem.ruh.ac.lk