Biotransformation of Nootkatone using *Macrophomia phasiolina*

Vajira P. Bulugahapitiya[1], Syed Ghulam Musharaff[2]

[1] *Department of Chemistry, Faculty of Science, University of Ruhuna, Matara,*
[2] *H. E.J Research Institute of Chemistry, International Centre for Chemical Sciences, University of Karachi, Pakistan.*

Correspondence: vajira@chem.ruh.ac.lk>

Biotransformation or microbial transformation is the process in which chemical alteration of the substances occur by the action of micro organisms. Enzymes are involved in these transformations. Microbial transformation is an effective tool for the structural modification of compounds. Specially, microbial transformation of secondary metabolites from crude drugs or synthetic compounds have been of much interest since recently in the development of novel drugs.

In this work, study on fungal transformation of Nootkaton is presented. Nootkaton is a sesquiterpene ketone, which is naturally available from grapefruit. It has been reported that Nootkatone exhibits the ability of decreasing somatic fat ratio. Biotransformation of Nootkatone was carried out using the fungi, *M. Phaseolina* in Sabouraud- Glucose-Agar medium at room temperature. After completion of the transformation, three structurally interesting compounds

were isolated as metabolites. Their structures were elucidated with the help of EI-MS, HR-FAB-MS(pos), HR-FAB-Ms(neg), ^{1}H-NMR, ^{13}C-NMR, COSY-45°, NOESY, HMBC and HMQC spectral analyses. The major compounds was obtained in 60% yield as a non-separable, 1:6 stereoisomeric mixture and the other two were obtained as stereoisomerically pure form. Out of these three compound, two compounds are already known as Nootkatone metabolites using different fungi and the other compound was first reported in this study as Nootkatone metabolite.