



## **Pharmaceutical Potentials and Microarray Gene Expression of Secondary Metabolites from Borneon Flora**

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Borneo is a hotspot of marine and terrestrial biodiversity. In the last 15 years, we have investigated Bornean flora from marine and terrestrial origin. To date a total of 300 secondary metabolites has been isolated and their structures determined. Their structural diversity is unique and they were subjected to various bioassay screening. Most compounds exhibited anti-inflammation and anti-cancer activities. However, molecular mediators that regulate both inflammation and cancer has been considered as promising targets for preventing and treating these diseases. In this study, we have identified novel secondary metabolites isolated from red algae genus *Laurencia* and liverwort. Compounds were isolated based on ‘bioassay based separation’ approach and their structures elucidated based on spectroscopic data. Their inflammatory potential and mechanism of action was evaluated using RAW 264.7 macrophages, in addition PGE<sub>2</sub>, TNF- $\alpha$ , IL-1 $\beta$  and IL-6, iNOS, and COX<sub>2</sub>, were evaluated. Cancer cell bioassay was concluded using HL60 cell lines, with control normal cells. Apoptosis mechanism was evaluated using Sub-G1 proportion, microscopic technique, Bax, Bcl-xl, Cleaved Capcase 3 and  $\beta$ -actin. In addition we also investigated the microarray gene expression on the cells when these compounds were tested.

### **Biography**

Dr. Charles S Vairappan is a Professor of Natural Products Chemistry at the Institute for Tropical Biology and Conservation, Universiti Malaysia Sabah, Kota Kinabalu, Sabah, Malaysia. He obtained his PhD in the field of Marine Chemical Ecology (Marine natural Products Chemistry) at Hokkaido University (Sapporo, Japan) in 2001. He is also a JSPS Fellow and did his Post-Doctoral attachment at Graduate School of Agriculture, The Tokyo University, Bunkyo-Ku, Tokyo from 2006-2007. He has published more than 100 papers in reputed journals and holds patents on lead pharmaceutical chemicals.