

CELEBRATING  
COMMERCIALISATION  
YEAR 2014

# iiindex 2014

AN INTERNATIONAL EXPOSITION ON RESEARCH AND INNOVATION

invention  
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& design  
exposition 2014

INNOVATEUR  
wannabe!  
2014

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UNIVERSITI TEKNOLOGI MARA  
MALAYSIA

*Bridging  
the valley of death :  
advancing the  
commercialisation  
of research*

RESEARCH BOOK

# iiindex2014

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innovation  
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## FOREWORD

The Honourable Minister of Science, Technology and Innovation (MOSTI) has launched 2014 as Malaysia Commercialisation Year 2014 (MCY2014) with the theme Science Technology and Innovation (STI) for Wealth Creation. In line with this theme, Invention, Innovation, Design & Exposition 2014 (iidex2014) is an annual exposition organized by UiTM and is the ultimate platform to highlight and commercialise new inventions and innovations. Researchers and inventors will exhibit their products which cater to the needs and wants of the community and the country.

The iidex2014 creates a new dimension by fusing two competitive concepts, a competition among innovative products and a competition to invite Innovateur Wannabes to perform live pitching of their products to the audience. The iidex2014 focuses on comprehensive commercialization and creating opportunities for entrepreneurs to carry out R&D as well as to provide avenue to commercialise their products. Through expositions such as iidex2014, MOSTI hopes to inculcate the culture of commercialisation of new technology designed and created by Malaysians.

I wish to congratulate all the participants of the iidex2014 and this is the opportunity for all researchers to show their ideas and exhibits their products and creativity. Apart from showcasing their products, innovators will have the opportunity to provide a window to the industry for business matching during the exposition.

Tan Sri Dato' Sri Sallehuddin Mohamed  
Pro-Chancellor, Universiti Teknologi MARA

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## ISOLATION AND CHARACTERIZATION OF MARINE FUNGI IN MALAYSIA

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Natural products can be defined as chemical constituents containing carbon that were isolated from primary or secondary metabolites of diverse living organisms including plants, animals and microorganism (Vignesh et al., 2011). Natural products can be divided into primary and secondary metabolites. The primary metabolites such as polysaccharides, fatty acids, proteins and nucleic acids are basically used for their biological systems for an example in reproduction, photosynthesis, transpiration and others. Differ to secondary metabolites. it is produced by living organisms that are not essential for their basic survival but give a significant value to human mankind as they might have biological activities such as anti-fungal, anti-bacterial, anti-diabetics, anti-malarial and others. They can be classified into several classes of compounds including flavonoids, alkaloids, terpenoids, polyketides, non-ribosomal peptides and others (Berdy, 2005). Throughout decades ago, the nature would be in the front line in order to combat with wide spectrum of human diseases. Plants are one of the natural sources that served as traditional medicines such as Cedrus species (cedar), Commiphora species (myrrh), Cupressus sempevirens (cypress), Glycyrrhiza glabra (licorice) and Papaver somniferum (poppy juice), in which they are still being used in the pharmaceutical market today from cough relief to parasitic infections. Based on Ebers Papyrus document, there are about 700 remedies that are mostly from plants origin. In order to benefit from microbes, marine sample was collected from Malaysian biospheres and forty-nine strains of fungi were isolated from it. On the basis of morphological growth, eighteen strains were chosen and their organic extracts were subjected to High Performance Liquid Chromatography (HPLC) for the initial metabolic profiling. Out of these, one was chosen for the isolation of secondary metabolites and subjected to column chromatography with ethyl acetate and hexane as an eluents. Three fractions were further purified by semi preparative High Performance Liquid Chromatography (HPLC) and yielded five pure compounds. These compounds were characterized using Nuclear Magnetic Resonance (NMR), Ultraviolet (UV), Infrared (IR) Spectroscopy and Mass Spectrometry (MS). The molecular genetics of the selected fungus was studied and identified as Chaetomium globosum.