

CELEBRATING
COMMERCIALISATION
YEAR 2014

iiindex 2014

AN INTERNATIONAL EXPOSITION ON RESEARCH AND INNOVATION

invention
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exposition 2014

INNOVATEUR
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2014

27th - 30th
APRIL 2014
DEWAN AGUNG TUANKU CANSELOR (DATC)
UNIVERSITI TEKNOLOGI MARA
MALAYSIA

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

RESEARCH BOOK

iiindex 2014

AN INTERNATIONAL EXPOSITION ON RESEARCH AND 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
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GOLDEN-C: MANGO DRINK ENRICHED WITH ANTIOXIDANTS OF MAS COTEK

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Beneficial health effects of dietary antioxidants have prompted the idea of commercial antioxidant-rich beverages. Malaysia has been blessed with a variety of fruits and herbs. Our ancestors have been consuming raw vegetables and herbs as part of their daily diet. Scientific studies have been carried out to evaluate the beneficial effects of Malaysian herbs. A number of studies support the intake of our local herbs to prevent diseases mainly caused by oxidative stress. Today, some of our herbs have been turned into products, for example tablets and some are incorporated into coffee to simplify and assist the pharmacological effects of the herbs. Known to be rich in vitamin C, mango is among the reputable fruit in the world, in addition a number of high quality mango clones are available in Malaysia. Our interest has been at incorporating herb extract into a mango drink to create a new way of enjoying the goodness of mango with local Malaysian herb. Antioxidant properties of herbs have been proved relevant to the herbs beneficial effects. Phenolic compounds such as flavonoids have been found responsible for the observed antioxidant effects. Thus herbs known for high antioxidant properties have been in our interest. However, some herbs are not suitable to be incorporated into the mango drink due to the pungent taste and colour of the herb extract that may interrupt the organoleptic properties of the mango drink. It was found that dried *Ficus deltoidea* leaves extracted with water at 50 degree celsius for 20 hours yielded aqueous extract with the highest flavonoids and total phenolic content. This traditional herb, known locally as Mas Cotek, is a plant from the family Moraceae and has been used for its medicinal properties. It is used to treat pneumonia, diabetes, hypertension, diarrhoea and gout. A total of 25 flavonoid compounds consisted of 9 flavanols and 16 flavones were tentatively identified from dried leaves of Mas Cotek using high performance liquid chromatography (HPLC) coupled to photodiode array and electrospray ionization mass spectrometry. Mas Cotek could be a suitable candidate to be incorporated with mango drink. Moreover, positive effects of Mas Cotek on glucose and lipid levels and were found safe for use in human. The objective of the present work was to produce a new mango drink enriched with the antioxidants of Mas Cotek (*Ficus deltoidea*) herb. The bioactive composition (flavonoids and vitamin C) of the drink with Mas Cotek aqueous extract exhibited higher total phenolic content and total flavonoid compound (1386.98 mg/L and 2.9694 mg/L, respectively) compared to mango drink without the incorporation of Mas Cotek which exhibited total phenolic content and total flavonoid compound (1244.55 mg/L and 1.1084 mg/L, respectively). In addition, the Mas Cotek aqueous extract incorporated in the mango drink did not affect the organoleptic properties of the mango drink. Therefore, our study suggested that the Golden-C which is made up of 20% of mango pulp and 50% of Mas Cotek, has the potential to be developed as a new health drink.