



UNIVERSITI
TEKNOLOGI
MARA

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

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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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SPECIAL FORMULATION FIBER-ENRICHED MILK POWDER FOR CONSTIPATION

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Constipation in children is a common problem affecting between 5% and 30% of children. It is often accompanied by parental anxiety. Constipation is typically characterised by low water- and fiber- intakes. This innovation has combined fresh milk and fruits in homogeneous conditions. The specially formulated fresh milk-fruit pulp is spray dried in order to produce the final product. This product has been prepared with the correct adsorption isotherm between the fiber particle and the butterfat globules in the milk. As a result, the suspension of the fibre enriched milk powder in the form of milk solution is very similar to the milk solution prepared using commercial milk powder. The commercial milk powder is known to contain maltodextrin which is a compound acts as an emulsifier. It is used to sustain the butterfat globules in the milk suspended in the solvent medium (ie. water molecule) for a long a time. Milk solution is a homogeneous butterfat particle (colloid) in water suspension (colloidal system). The butterfat globules are able to remain dispersed in the water due to the coating of natural emulsifiers (such as in the presence of maltodextrin) that prevent their coagulation. The concept involved depends on how we manipulate the surface forces operating in colloidal system through chemical additives and change their behaviour. In determining a stable suspension, the repulsive forces between the colloid particles in the suspension must be dominant. While inventing this product, one of the inventors applied the knowledge of repulsion forces mechanism. When high concentration of the fruit- or leafy vegetable puree in the milk solution (ie. system) is employed, the system will promote to a higher amount of the same charged species, hence further promote repulsion forces that will result in a stable milk suspension. Ultimately, this product is invented so that parents or child-care administrators do not need to blend puree fruits or boiled vegetable to be given to the children experienced with constipation. They can substitute with this product it saves time, easy to manage and convenient for working parents.