

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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UNIVERSITI TEKNOLOGI MARA
MALAYSIA

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

RESEARCH BOOK

iiindex2014

AN INTERNATIONAL EXPOSITION ON RESEARCH AND INNOVATION

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RESEARCH INNOVATION BUSINESS UNIT
UiTM-MTDC Technopreneur Centre, Universiti Teknologi MARA
40450 Shah Alam, Selangor Darul Ehsan, MALAYSIA
Tel : +603-5544 2747/2748/2750
Fax : +603-5544 2790

Web : www.iiindex.com.my
Email : iiindexuitm@gmail.com



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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PROTECTIVE THERMOFORMING PALATAL COVER

Nagham Mohammed Abdullah, Ibrahim Muhamadi, Mohamed Ibrahim Abu Hassan
Faculty Of Dentistry,, UiTM Shah Alam, Selangor.
Email: nagham@salam.uitm.edu.my

This innovative designs of thermoforming plastic appliances that is used to cover the palate (roof of the mouth), in cases were orthodontic miniscrews or miniplates are inserted in the patient's palate to provide anchorage for teeth movement. Why it is produced: The use of miniscrews has expanded the scope of orthodontic treatment and enabled orthodontists to perform tooth movement with greater control. However, miniscrews could become loose and fail due to pressure from the tongue or when the tissues surrounding the miniscrews become inflamed. Also miniscrews can cause trauma and painful ulcers to the tongue and affect the patient's cooperation negatively. This innovative design was created to minimise failure rate of orthodontic miniscrews by protecting the miniscrew from tongue pressure and protect the patient's tongue from trauma caused by palatal placed miniscrews, also covering the miniscrews will protect the surrounding soft tissue from inflammation which is considered a cause of failure for miniscrews. How it is produced: This palatal coverage design is produced from a thermoforming plastic sheet (Erkodur), which is biocompatible and widely used material in manufacturing orthodontic retainers. This design is manufactured by a thermoforming machine using a stone model of the patient's teeth and palate. We are proposing two versions of this protective cover, the first one is attached to the orthodontic appliance by small rare earth Samarium-Cobalt magnets (Sm-Co), and the second version is attached to the teeth by Ball- end clasps. Advantages and features: To protect the miniscrew from tongue pressure, protect the surrounding tissues from inflammation, and protect the tongue from trauma and ulcers caused by the miniscrews. It is a low cost solution and an easily produced design that can increase success rate of miniscrews and orthodontic treatment in general. Socio economic impact: By reducing failure rate of miniscrews we can reduce time and cost of orthodontic treatment and reduce chair time and material use for the orthodontist, also protecting the tongue from trauma can increase patient's cooperation and reduce analgesic use.

A NOVEL INTRA-ORAL LUBRICATING DEVICE FOR DRY MOUTH PATIENTS

Lim Tong Wah, Avijit Banerjee, Richard Cook, Michael Fenlon
Faculty of Dentistry, UiTM Shah Alam, Selangor.
Email: limtongwah@salam.uitm.edu.my

Background: the treatment available currently for severe xerostomia are non-specific and based principally on symptomatic relief as most of the causes of this condition are difficult to cure or eliminate. At present, clinical management relies primarily on self-administered topical saliva substitutes, saliva stimulants and systemic agents which are only applicable during waking hours. However, as the salivary flow rate drops significantly during sleep, most patients experience the worst dryness symptoms at night and sleep is disturbed regularly. Objectives: to develop a system which is suitable to form the basis of in-vivo clinical trials on patients who have extreme needs for salivary enhancement, aiming to improve their oral health status and quality of life. Methodology: an oral splint prototype was developed using soft/ hard two layers ethylene vinyl acetate. The prototype included silicone tubing which was used to transfer the lubricating agent from an extracorporeal reservoir - baxter ap ii patient-controlled analgesia pump to the oral splint to deliver the lubricant intra-orally at night. Outcomes: the design of intra-oral lubricating device might be suitable to form the basis of in-vivo clinical trials on xerostomic patients. It also represents a concept for the versatility of the device in which various drugs can be administered via this system.