

Wednesday, 8 July 2009

eM-PATCH® DELIVERS SIGNIFICANT IMPROVEMENT IN TOOTH WHITENING

OBJ Limited (ASX: OBJ) is pleased to report that a collaborative study between Curtin University and the Company has delivered statistically significant improvements in all key tooth whitening measures using the new **eM-Patch®** Tooth Strip design when compared to the same tooth whitening agent delivered using the standard contact method.

Dr Heather Benson of the Curtin University's School of Pharmacy concluded that **eM-Patch®** Tooth Strip achieved:

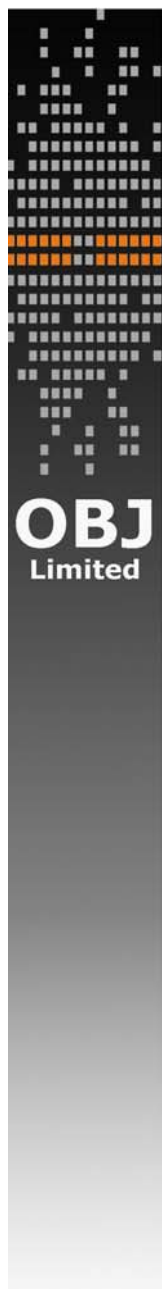
- **49% greater colour change**
- **31% greater shift in colour from yellow to the white spectrum**
- **40% greater increase in tooth luminosity**

The collaboration was part of the **eM-Patch®** Oral Health Development program which focused on developing disposable, inexpensive tooth wrap products to deliver carbamide peroxide and other beneficial oral health compounds with greater efficiency and at less cost than existing "mouth guard" based products. Tooth whitening is reported to be a US\$11 billion per annum industry and the world's most commonly requested cosmetic procedure. Tooth enamel, tooth dentin and the plaque films are semi-permeable and are therefore potential areas for commercial developments for the Company's proprietary drug delivery platforms.



The collaborative study between Curtin University and the Company set out to test the effectiveness of the Company's **eM-Patch®** Tooth Strip system as a means of enhancing the penetration of a leading commercial carbamide peroxide gel, a product sold internationally as an over-the-counter product for home tooth whitening.

The study investigated the level of enhancement in tooth whitening by **eM-Patch®** delivered carbamide peroxide compared with the same agent applied in the traditional contact manner. As the mechanisms of tooth whitening involve the penetration of peroxide through the enamel causing lightening of the yellow tissues within the tooth, the study used digital colorimetry to examine changes in the percentage of yellow in the tooth colour, the shift in the tooth's central colour from the yellow spectrum towards the white and changes in luminosity or brightness of the tooth.



The study used measured doses of carbamide peroxide gel on 20 donated human teeth. The passive group (n=10) were treated with a measured amount of carbamide peroxide applied to the surface of each tooth. This formed the control group and simulated the normal application of carbamide peroxide using the tooth tray. The active group (n=10) received the same measured amount of carbamide peroxide but was placed on segments of ETP magnetic array material to simulate application by **eM-Patch®** Tooth Strip. The experiment was allowed to run for 48 hours.

RESULTS

Changes in tooth colour were determined by examining the percentage of the mean yellow in the digital image histogram. The analysis revealed that the **eM-Patch®** group achieved a 49% (p= 0.025) greater reduction in yellow content compared to the passive Carbamide peroxide group.

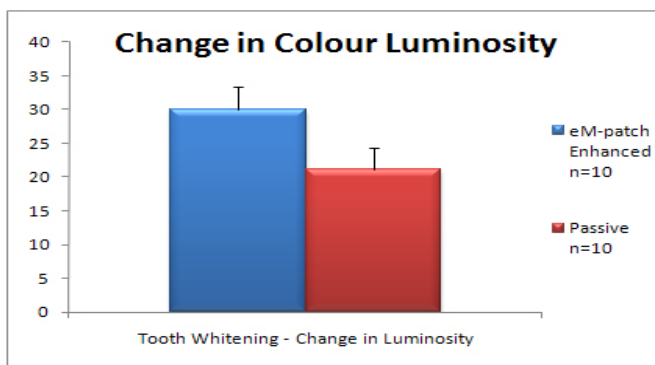
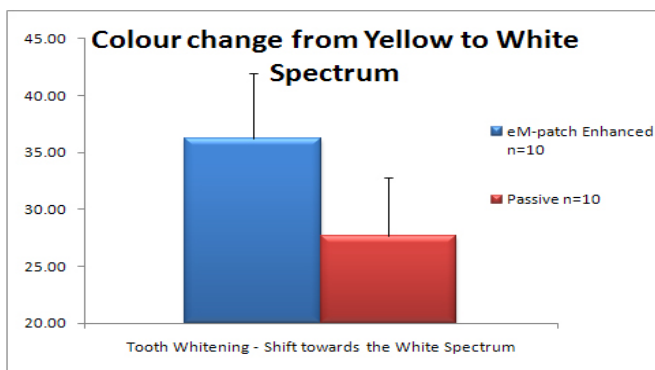
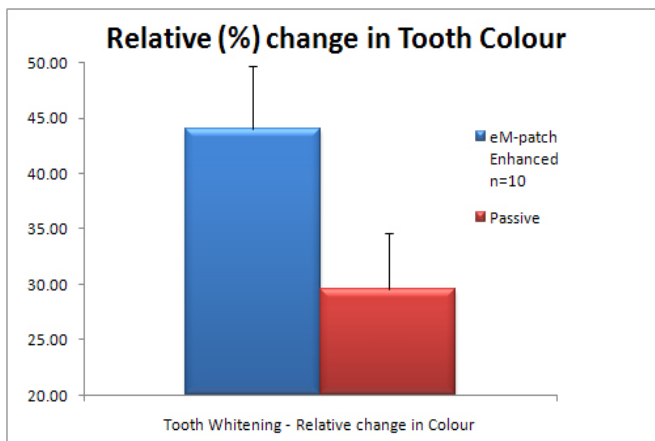
Mean	43.98	29.58
Stdev	16.21	14.35
Sem	5.73	5.07
P=0.025		

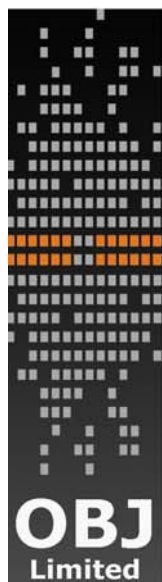
Analysis of the colour spectrum shift for each tooth revealed that the average shift from the yellow spectrum to the white spectrum was 31% greater in the **eM-Patch®** group than the passive

Mean	36.20	27.70
Stdev	8.20	12.40
Sem	2.90	4.38
P=0.044		

Luminosity analysis also showed a statistically significant difference between active and passive within the **eM-Patch®** group achieving 40% greater increase in luminosity than the passive group.

Mean	29.54	21.09
Stdev	9.55	9.17
Sem	3.37	3.24
P=0.023		





The Company's **eM-Patch**[®] Oral Health Development Program also includes research and development into the enhanced delivery of desensitising agents for the treatment of sensitive teeth and the potential delivery of anti-microbial compounds through the plaque membrane for effective anti-plaque treatments. The Company is actively engaged with the international oral health industry and is exploring several potential partnering opportunities.

END:

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About eM-Patch[®]

The **eM-Patch**[®] technology and its powered alternative, Dermaportation, are based on magnetic field principals that have been shown in multi-centred university studies to enhance transdermal drug delivery and to reversibly increase dermal permeability for both lipophilic and hydrophilic molecules and peptides. Magnetic fields are believed to interact with the orbital behaviour of ingredient paired electrons and provide enhanced diffusion while induced electro-osmosis and altered water binding enhances permeability and partitioning. **eM-Patch**[®] is a cost-effective active drug delivery technology suitable for a broad range of applications in the pharmaceutical, dermatological and cosmetic sectors.

OBJ utilises the **eM-Patch**[®] technology in the design, development and supply of low-cost, high-performance patch products to partner companies using either generic or proprietary active ingredients. Manufacturing will be outsourced to major international patch manufacturers in Europe, USA and Asia. OBJ provides feasibility assessment, patch formulation, patch prototyping and testing services along with intellectual property development. OBJ offers a number of in vitro and in vivo test models for rapid and low cost assessment in development of patch products.

About OBJ

OBJ Limited (ASX: OBJ) is an early-stage Australian drug delivery company focused on the development and commercialization of transdermal drug delivery technology for use in pharmaceutical, dermatology and cosmetic applications. OBJ's proprietary Dermaportation and ETP technologies use magnetic fields to control drug movement and to alter skin permeability without disrupting the skin barrier.

OBJ maintains research and development facilities in Perth, Western Australia and undertakes independent studies and assessments through a number of respected universities and Contract Research Organisations.