



# 10<sup>th</sup> STUDENT SCIENTIFIC CONFERENCE



## REDEFINING ORAL HEALTH CHALLENGES FOR FLEDGLING DENTAL PROFESSIONALS

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# ORAL PRESENTATION



## BASIC SCIENCE CATEGORY

BS 1

### *In vitro* computer analysis of the color stability of tooth-colored restorative materials after bleaching using CIELAB color techniques

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Common vital tooth bleaching such as carbamide peroxide were found to have a profound influence on the colour behaviour of tooth-coloured restorations. This *in vitro* study designed to evaluate the effect of two bleaching agents : Ultradent Opalescence PF Home and Ultradent Opalescence Boost Office bleaching agent on colour stability of the nanofilled composite Filtex Z350 XT, the sub-micron composite Estelite Sigma Quick and nanofilled glass ionomer Ketac N100 nano ionomer. All restorative materials used in this study were in shade A2. Samples were fabricated using plexiglass discs 6 mm diameter and 2 mm in depth in three groups: Group I: Filtex Z350 XT; Group II: Estelite  $\Sigma$  and Group III: Ketac Nano (n=90). Each group was further divided into three subgroups (n=10).A: Opalescence home bleaching; B: Opalescence office bleaching and C: Distilled water as control. Samples were bleached and rinsed following the manufacturer's instructions for two weeks period. Photos of samples are taken with Nikon D200 digital camera. Color Lab values were then analyzed using software Photoshop CS3 Ver 10.0. The data was subjected to statistical analysis. A Kruskal-Wallis variance analysis and Mann Whitney test were used. All composite resin restorative materials showed significantly color changes ( $\Delta E$ ). Statistical significant was declared if the *P* value was 0.05 or less. The mean color change of Estelite  $\Sigma$  ( $3.82 \pm 1.6$ ) was the highest, followed by Ketac Nano ( $2.97 \pm 1.2$ ). Filtex Z350 XT showed the least color change ( $2.25 \pm 1.0$ ) with all bleaching agents. Sub-micron resin composite showed the highest color changes followed by Ketac nano-ionomer and nanofilled composite. Nano filled composite or glass ionomer showed better color stability compared to microfilled tooth color materials.



BS 2

## Effect of addition of wollastonite and mine silica to the hardness of glass ionomer cement (GIC)

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Despite of the unique fluoride release property and forming ionic bond with tooth structure exhibited by Glass Ionomer Cement (GIC), the most intractable problem is probably the brittleness of the material. Efforts to improve their mechanical properties have been made in several aspects. The addition of wollastonite and mine silica into GIC is a new approach. This study aimed to evaluate the effect of the addition of wollastonite and mine silica by-product as additives on the hardness of the GIC. The samples were mixed with GIC powder followed by initiator addition. The composite was casted into suitable mold for hardness determination. Vickers hardness of the resulted wollastonite-GIC and mine silica-GIC composites was then measured at 24 hours after the initial mixing. The resulted hardness showed that the optimum result was the 1% wollastonite-GIC ( $66.53\text{HV} \pm 7.37$ ) with ~1% increment as compared to pure GIC ( $62.66\text{HV} \pm 2.98$ ), but the hardness values deteriorate as the percentage of wollastonite being added increases. The mine silica-GIC did not show any significant increase of hardness value as compared to pure GIC. In conclusion, addition of wollastonite into GIC has shown slightly improved on the hardness, while no improvement was observed for mine silica by-product.



BS 3

## Bacterial adhesion to tooth coloured material

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Bacterial accumulation on dental restorative materials may lead to failure of restoration due to secondary caries, periodontal disease and staining. Nowadays, with many selections of tooth coloured dental materials available in the market, hence it is important to assess bacterial adhesion on these materials. The aim of this study is to investigate bacterial adhesion, on glass ionomer cement (GIC) and composite resin (CR) by evaluating their surface roughness, Ra. This is an *in vitro* experimental study using *Streptococcus mutans* cultured on Fuji II LC (microfilled GIC) and Ketac N100 (nanofilled GIC), Z250 (microfilled composite) and Z350 (nanofilled composite). 7 specimens per group of samples (n=7) were used. All specimens were packed in acrylic mould, light cured for 40 sec and were polished with sof-lex. Ra of the tested materials was assessed before and after bacterial colonization for 7 hours and 24 hours using Atomic Force Microscope (AFM, Ambios, USA). The data was analyzed using SPSS version 20 and the level of significance had been set at  $p < 0.05$ . Results showed that there were significance difference between GIC and CR, before and after bacteria incubation for both GIC and CR, between microfilled and nanofilled for both materials, and between microfilled and nanofilled of GIC and CR. However, there was not significance difference in bacterial accumulation after 7 hours and 24 hours in both materials. As conclusion, Z350 has the lowest bacterial adhesion compared to Z250, Ketac N100 and Fuji II LC.



BS 4

## Curing Ability of Light Curing Units for resin polymerization

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Optimum performance of light curing unit in term of light intensity is one of important factor for curing the composite resin adequately. This study is to evaluate the performance of light curing units and co-relationship between light intensity and hardness of composite resin after polymerization. Five light curing units from each of seven polyclinics in Hospital Universiti Sains Malaysia (HUSM) were randomly selected and tested for their intensity by using radiometer (CURERITE™ (Dentsply® Caulk)). Each light curing unit was used to cure three prepared composite resin (Filtek™ Z350XT, shade A3, 3M ESPE, U.S.A) into 3x2mm (diameter x height) blocks. The specimen was then polished and stored in dark container before hardness measurement. Measurement of vickers hardness (VHN) was performed by using a hardness tester (Model VM-50, Fuel Instruments & Engineers Pvt. Ltd., Maharashtra, India). Five measurements of each sample were performed with a load of 10 kg. Statistical analysis was performed by using SPSS 20. Light curing intensity had significant effects ( $p < 0.05$ ) on mean hardness of composite resin. The highest and lowest light intensities recorded were  $1652 \text{mW/cm}^2$  and  $432 \text{mW/cm}^2$ . And the mean was  $1200 \text{mW/cm}^2$ . The highest and lowest values for Vickers hardness test were 163.4VHN and 82.8VHN. There was a positive correlation between light intensity and the Vickers hardness value. All the light curing units tested had adequate light intensity ( $>400 \text{mW/cm}^2$ ). Lower-intensity light curing units had resulted in the reduced Vickers hardness value of cured resin composite which indirectly indicates that less polymerization of resin composite had occurred. Therefore, performance of light curing units is important in resin composite curing.



BS 5

## Development of gypsum-based biomaterials: Evaluation of physical and mechanical properties, cellular effects and its potential as a lining/ base materials

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Pure gypsum (pure-GYP) and gypsum-based chitosan (Gyp-CHT) were developed as pulp protecting biomaterial. Physical and mechanical properties and effects of this novel biomaterial on proliferation of SHED and alkaline phosphatase (ALP) activity were investigated. Pure-GYP was mixed with water (2.5 g: 1.9 ml); Gyp-CHT was prepared with gypsum: chitosan: water (2.5 g: 0.285 g: 1.9 ml). Setting time, pH and compressive strength of the biomaterials were measured. Analyses of cell proliferation and ALP assay were carried out on SHED treated with various concentrations (100-1.56 mg/ml) of materials extract. Untreated cells were used as a control. Cell viability was assessed for 3 days. ALP activity of cells was assessed after 1, 3, 7, 10, and 14 days. Data were analyzed using SPSS ( $p < 0.05$ ). Setting time was 2.7 and 2.8 min for Pure-GYP and Gyp-CHT respectively. The pH value was ranged from 5.98 to 7.54 for the materials tested. Significantly higher compressive strength was observed with Gyp-CHT. Treatments of SHED with both the materials were considered not cytotoxic (cell viability treated with different concentrations of materials showed  $>50\%$ ). The level of ALP was consistently higher in the treated groups when compared to the control; especially at Day 14 the ALP was significantly high at each concentration. In conclusion, physical and mechanical properties of the gypsum based biomaterials are considered within the accepted range. Excellent cellular viability with pure-Gyp and Gyp-CHT and increased ALP activities suggest possibility of dentin formation thus application of Gyp-CHT biomaterials as pulp protecting material would be highly promising.



BS 6

## Detection of Notch signalling pathway associated molecules in SHED and DPSC

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Human dental pulp stem cells are mesenchymal stem cells derived from the pulp tissue of extracted deciduous (SHED) and permanent teeth (DPSC). Both populations are multipotent stem cells indicating their ability to differentiate to specific cell lineages such as odontoblasts and osteoblasts. The Notch signalling pathway provides important intercellular signalling mechanisms essential for cell fate specification and development. The aim of this study was to detect the expression of Notch signalling pathway associated molecules; the Notch receptor, ligands and its downstream target gene, in SHED and DPSC. Total RNA was extracted from cultured SHED and DPSC. Two micrograms of the total RNA was reverse-transcribed and the cDNA obtained was subjected for PCR analysis using the specific primer pairs for *Notch 1* receptor, *Jag 1* and *Delta-like1* ligands and *HES-1* target gene. Positive internal control ( $\beta$ -actin) was applied for the determination of expressed mRNA levels. PCR products were observed on 2% agarose gel stained with SYBr green. *Delta-like1* ligand was highly expressed on DPSC compared to SHED while *Jag-1* ligand was only detected on DPSC but not on SHED. However, *Notch 1* receptor and *HES-1* target gene were not expressed on both SHED and DPSC. Detection of Notch ligands in these stem cells suggested that Notch signalling pathway might play a role in controlling the biological activity of SHED and DPSC. Additionally, differences in the expression levels of the ligands might highlight the importance of this signalling pathway in determining the specific cell lineages once these stem cells undergo lineage differentiation.



**BS 7**

## The anti-apoptotic effect of Tutup Bumi extract on osteosarcoma cell line

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*Tutup Bumi or *Elephantopus scaber* is one of the herbal plants that can be found in Malaysia. Previous studies suggested that this herbal extract contains anti-carcinogenic and apoptotic properties as the underlying mechanism. The aims of this study were to determine the  $IC_{50}$  of Tutup Bumi extract as well as the expression of bcl-2 apoptotic gene on human osteosarcoma cell line. The cells were cultured in DMEM supplemented with 10% heat-inactivated fetal bovine serum and 1% penicillin/streptomycin at 37°C in a 5% CO<sub>2</sub> humidified atmosphere. On confluence, the cells were treated with different concentrations of Tutup Bumi extract (100 and 200 µg/mL) and incubated for 12, 24 and 36 hrs. The cells were then subjected to the standard colorimetric MTT assay and the absorbance was read at 570 nm. Subsequent analysis was carried out based on the  $IC_{50}$  value and incubated for 12 hours. The cells were harvested, RNA was extracted and followed by Qiagen One Step RT-PCR for bcl-2 gene expression. The amplified gene was analysed on agarose gel electrophoresis. The  $IC_{50}$  for Tutup Bumi extract on osteosarcoma cell line was 100 µg/mL based on MTT assay. The RT-PCR analysis showed the expression of bcl-2 gene suggesting the apoptotic role of Tutup Bumi extract on human osteosarcoma cell line.*





BS 8

## Proliferative effect of Royal Jelly on human lung fibroblast cell line using live cell imaging

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Fetal bovine serum (FBS) is commonly used as a supplement to basal growth medium in cell culture. However, its usage involves some moral and scientific problems. This study aimed to determine proliferation effect of Royal Jelly (RJ) on human lung fibroblast cell line (MRC-5) using live cell imaging.  $4 \times 10^3$  MRC-5 cells were seeded and incubated with two concentrations of RJ extracts (0.156 and 0.078 mg/ml), negative control (Alpha-Minimal Essential Medium ( $\alpha$ -MEM) supplemented with 1% Penicillin-Streptomycin) and positive control ( $\alpha$ -MEM supplemented with 10% FBS and 1% Penicillin-Streptomycin). To visualize the nucleus of MRC-5 cells, CellLight™ Histone 2B-GFP (BacMam 2.0) reagent was added to each group. Images of cells were captured every half an hour for 24 hours by using live cell imaging system. Number of cells at initial (0 hour) stage and end (24 hours) of experiment were counted and Population Doubling Time (PDT) was determined. PDT of 0.156 and 0.078 mg/ml of RJ extracts, positive and negative controls were -202.18 hours, 111.11 hours, 56.78 hours and 69.44 hours respectively. Positive control produced the lowest PDT followed by negative control and the RJ groups (0.078 mg/ml and 0.156 mg/ml). PDT of positive control group and 0.156 mg/ml of RJ ( $p < 0.05$ ) was significantly different. No significant difference in PDT was found between the RJ groups and negative control and between the two concentrations of RJ; 0.078 and 0.156 mg/ml ( $p > 0.05$ ). In conclusion, Royal Jelly does not exhibit similar ability like FBS to facilitate cell growth under the present test conditions.



BS 9

## Effect of Chitosan as Coupling Agent and Types of Stabilizer in Zirconia Filler on Nanocomposite Hardness

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Nanocomposite has been developed as a dental restoration. The nano-scale filler can result in high mechanical properties and good esthetic. Nanofiller materials such as Partially Stabilized Zirconia have been promoted as suitable for dental use. This form of zirconia can be stabilized by the addition of several different oxides such as magnesium oxide (MgO) and calcium oxide (CaO). Chitosan as coupling agent can increase nanocomposite's mechanical properties. The objective of this research was to evaluate nanocomposite's hardness numbers with and without addition of chitosan as coupling agent; also with different stabilizers in zirconia filler. Vickers hardness test was performed in this research. Nanocomposite's hardness number with zirconia filler stabilized by MgO without addition of chitosan was 5,09 VHN and with addition of chitosan was 7.51 VHN; nanocomposite's hardness number with zirconia filler stabilized by CaO without addition of chitosan was 8.16 VHN and with addition of chitosan was 13.13 VHN. The results were analyzed statistically by Analysis of Variance (ANOVA) and showed significant difference between all of those data groups. In conclusion, the addition of chitosan and different stabilizers (MgO and CaO) in Zirconia filler had affected the nanocomposite's hardness number.



BS 10

## The use of banana (*Musa paradisiaca*) stems fiber as an alternative material for biodegradable dental floss: a tensile strength analysis

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Dental floss is the most widely recommended tool for removing plaque from proximal tooth surfaces. However, most of dental flosses are currently made out of environmentally and ecologically unfriendly materials such as nylon, Teflon and silk. This research aimed to observe the suitability of banana stem fiber as a new alternative material for biodegradable dental floss by studying the tensile strength properties. The research method is a laboratory experimental study whereby banana stem fibers extracted manually from the pseudostem of one specified banana plant (*Musa paradisiaca*) were randomly divided into three different groups according to the amount of fibers/bundle following the homogenization procedure. The tensile strength of each group (10, 15, and 20 untwisted fibers/bundle) and an ADA accepted commercial silk dental floss as the control group were measured using Instron Materials Testing Machine, and then statistically analyzed using one-way anova with  $p \leq 0.05$  indicating statistical significance. The results data reflected the average tensile strength order of each group as; banana stem fiber with 15 fibers/bundle (391.3679 MPa), 20 fibers/bundle (307.0568 MPa), 10 fibers/bundle (141.5580 MPa), and the control group (130.7329 MPa), with statistically significant difference between 15 as well as 20 fibers/bundles and the control group ( $p=0.00$ ), but no significant difference between 10 fibers/bundle and the control group ( $p=0.92$ ). In conclusion, the higher tensile strength of banana stem fiber with 10, 15, and 20 fibers/bundles compared to the control group showed that banana stem fiber may be possibly suitable as a new alternative material for biodegradable dental floss.



## CLINICAL CATEGORY

C1

## The effect of Tualang honey in the treatment of chronic periodontitis: A pilot study

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Honey has been shown to promote tissue healing. Nevertheless its effect on periodontal tissue healing has very limited evidence. The aim of this study was to evaluate the potential clinical benefits of Tualang honey after periodontal therapy. Fourteen chronic periodontitis patients with total of 94 sites probing pocket depth 5mm and above were randomly assigned into control and test groups after fulfilling the selection criteria. Plaque score, gingivitis score, pocket depth and clinical attachment loss were recorded. Scaling and root planing were done in both groups. For the test group, non diluted Tualang Honey was then applied into the periodontal pockets. Patients were reviewed after six week and the parameters were reevaluated. Non parametric test was used to compare the changes of the parameters within and between groups. The result showed that there was significantly decrease in probing pocket depth and clinical attachment loss ( $p < 0.05$ ) after scaling and root planing in both groups. However, there was no significant different in the changes of all parameters after treatment between control and test group. Therefore, we suggest that Tualang honey have a great potential to be used as an adjunct in nonsurgical periodontal therapy, but further study with bigger sample size and time frame is recommended.



C2

## Preliminary study on the effect of non-surgical periodontal therapy on glycemic control in patients with type 2 diabetes mellitus

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The degree of glycemic control is an important variable in the relationship between Diabetes mellitus and periodontal diseases. Periodontal intervention trials suggest a significant potential metabolic benefit of periodontal therapy in people with diabetes. Diabetic subjects with periodontitis have shown improvements in glycemic control following scaling and root planning. The purpose of this study to observe the effect of non-surgical periodontal therapy on glycemic control in patients with type 2 diabetes mellitus (DM). A total of 20 DM type 2 patients with chronic periodontitis were selected and were divided into test and control groups. Periodontal parameters (pocket depth, plaque score (PS) and bleeding score (BS)) and random blood glucose (RBG) were taken during baseline and one month after that in the control group. Scaling and root planning were done during baseline in test group. Mean percentage of PS and BS of patients in test group were observed to be decreased after one month, while there was no changes in the control group. Mean pocket depth at baseline and after one month was  $4.3 \pm 1.23$  and  $4.43 \pm 0.95$  for control group and  $3.47 \pm 1.46$  and  $3.45 \pm 1.54$  for test group. No statistically significant difference was found in pocket depth between baseline and after one month for both groups. There was decreased and statistically significant difference between baseline and after one month of RBG ( $9.35 \pm 2.78$ ,  $7.93 \pm 2.01$ ) in test group as compared to RBG ( $8.37 \pm 2.89$ ,  $9.26 \pm 2.94$ ) in control group. These data suggest a possible link between periodontitis and glycemic control in diabetes mellitus type 2 patients.



C3

## Genotyping of the oral bacteria associated with caries in adolescents using molecular analysis

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The objective of this study was to identify the oral bacteria associated with caries and caries-free adolescents using molecular analysis. Plaque samples were collected with a hand excavator from three surfaces (sound tooth surface A, carious surface B and carious surface involving dentine C) of teeth in five subjects with caries. Simultaneously, plaque samples were also collected from five control subjects. Samples were pooled and placed in TE buffer and EDTA and transported in ice to the laboratory. DNA was extracted directly from the samples and 16S rRNA genes were amplified by PCR using universal primers. PCR products were singularized by cloning and the cloned inserts and cultured isolates were identified by 16S rRNA gene sequencing analysis. Results showed that the predominant bacteria found in caries adolescents and caries-free adolescents were different. However, there were no predominant differences in the bacteria identified in the three surfaces in caries adolescents. Other than *Streptococcus species*, the other most common bacteria found in caries adolescents were *Lactobacillus*, *Prevotella* and *Leptotrichia species*. This showed that most of the bacteria found in caries adolescents were anaerobic and acidogenic.



C4

## Comparison of the effectiveness between virgin coconut oil (VCO) and triamcinolone for treatment of minor recurrent aphthous stomatitis (RAS) in oral cavity

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There are many medications and traditional remedies in treating mouth ulcers. This study aimed to compare the effectiveness between VCO and triamcinolone in treating minor recurrent aphthous stomatitis in oral cavity. The effectiveness of healing ulcer was measured using two parameters which are the ulcer size and pain score. Twenty patients (n=20) with minor recurrent aphthous stomatitis were volunteered to join the study. They are the staffs and students of Healthy Campus of Universiti Sains Malaysia, Kelantan as well as the patients who attended HUSM dental clinic with no known systemic disease. They were divided into two groups. One group received VCO and the other group received triamcinolone acetonide (0.1%). The subjects were required to apply the medication twice per day. Ulcer size and pain were measured on treatment days 1 and 5. Data were analyzed using t test for independent sample. P value below 0.05 considered significant. No significant differences were found between the two groups studied. Even though the difference in ulcer size is not significant, the mean comparison revealed that virgin coconut oil is better in reducing the size of the ulcer and relieving pain compare to triamcinolone. In conclusion, the two treatments applied had similar effectiveness as they both reduced the ulcer size and relieved pain of recurrent aphthous stomatitis. As an alternative, the virgin coconut oil can be used for treating minor recurrent



C5

## A radiographic study of root canal treated teeth and post-retained crown in adult patients attending Hospital Universiti Sains Malaysia (HUSM) dental clinic

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Root canal treatment is aimed to eliminate the infection in the root canal system and protect the decontaminated tooth from future microbial invasion. Post retained crown is indicated to restore the inadequate tooth structure. A retrospective record review study was done to evaluate the practice of endodontic treatment in HUSM Dental Clinic, Kota Bharu, Kelantan which comprising of students' clinic, Klinik Rawatan Keluarga (KRK) and Klinik Pakar Pergigian (KPP), from 2007 to 2011. Patients' records were randomly selected and the data required for evaluation of treatment quality were obtained from the treatment progress sheet. Data were analyzed using SPSS version 20.0. Among 275 root canal treated teeth observed, 7.8% developed periapical lesion after the treatment. The association between type of canal preparation and presence of periapical lesion after root canal treatment and between type of file and presence of periapical lesion after root canal treatment was not significant with P-value of 0.109 and 0.129 respectively. From a total of 75 teeth with post and core evaluated, it was found that 6.3% of them have partial crown fracture which similar proportion on both maxillary and mandibular teeth. However, there was no case of apical periodontitis. Therefore, the operator skill and coronal restoration is essential in determining the success of endodontic therapy.





C6

## Head and neck cancer patients treated in Hospital Universiti Sains Malaysia (HUSM) and their Quality of Life

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Radiotherapy, surgery and chemotherapy are the treatment modalities for head and neck cancer patients. Post therapeutic complications as a result of the treatment have a huge impact on quality of life of the patients. Knowledge of the implications of the treatment in the patients may offer clinicians interventions to improve the management or coping strategies for long term outcomes in HUSM. The aim of this study was to describe the Quality of Life and oral functions in head and neck cancer patients treated at HUSM. With ethical approval, 22 head and neck cancer patients who have completed the course of treatment at HUSM were invited to participate. Informed consents were obtained and subjects were asked to complete 2 validated questionnaires in Malay version: University of Washington Quality of Life Questionnaire and Oral Health Impact Profile-14. In general, some items remain unaffected by the treatments. 79 percent (n=15) of the patients expressed slight anxiety about their cancer. Although 42 to 58 percents (n=8 to 11) found that items related to "Swallowing", "Chewing" and "Speech" were not affected, 32 to 42 percent (n=6 to 8) reported slight degree of worsening in the related items. 52.7 percent (n=10) of the patients reported to have minor changes in the "Appearance". Quality of Life following treatments in oncology patients was generally good but the ability to chew, swallow and speak deteriorated in some patients.



C7

## The prevalence of dysphagia in patients with head and neck cancer at HUSM

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Swallowing rehabilitation is an emerging field in the healthcare arena aimed at improving the quality of life in patients suffering from dysphagia. Prevalence of dysphagia is one of the important epidemiological data which will contribute to the proper planning and support the setting up of a swallowing rehabilitation clinic at this hospital. This study aims to determine the prevalence of dysphagia in patients with head and neck cancer (HNC) in Hospital Universiti Sains Malaysia (HUSM) from 2001-2010. In this institutional retrospective study, a total of 66 records were obtained comprising of 86.4% Malay patients, 9.1% Chinese, 1.5% Indians and 3% other ethnic groups. These data were taken from the database of patients seen at HUSM between 2001 and 2010. Difficulty swallowing, frequent coughing during meal, choking, diet modification and non-oral nutritional support were identified as signs and symptoms associated with dysphagia. Results showed that 59.1% of patients have had dysphagia before, during, or after the treatment of HNC. Data from this study would be instrumental in increasing awareness amongst clinicians involved in the patient's care and it may help in planning the outline of management of dysphagia. Furthermore, it is anticipated to have implications for further research in swallowing and dysphagia.



C8

## The A study on association of oral health status in stroke patient

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Stroke is a disease that affects the arteries leading to and within the brain and is one of leading cause of significant mortality and morbidity in both developed and developing countries. Dental infections associated with poor oral health are common chronic bacterial infections and often in subjects who delay seeking dental care. Bacterial infections are known to cause changes which may predispose to thrombosis, which known one of the causes leading to stroke incident. This study was carried out to look the association of oral health status in stroke patient. A total of 120 subjects; sixty subjects (n=60) are stroke patient and sixty control (n=60) with no history of stroke were selected. A case Performa was used to evaluate the common risk factors of stroke among all stroke patients that admitted in HUSM. Regarding the oral health status, a dental examination was carried out and the result was filled in a dental form. Data was analyzed by SPSS version 18.0. In this study, 53% from the stroke patients are edentulous as compared to non-stroke patient with only 13% are edentulous. 79% of stroke patients show high caries prevalence with DMFT scores is more than 10, while non-stroke patients only shows 48% that indicate high caries prevalence. Periodontal disease also more common in stroke patients compared with non-stroke patients. 61% of stroke patients have periodontitis while only 27% of non stroke patient have periodontitis. Intra-oral examinations also showed that most stroke patients have poor oral hygiene score (68%) while most of non-stroke patient have fair oral hygiene score (67%). In conclusion, this study has shown that most of the stroke patient having bad oral health status and poor oral hygiene control, which may cause oral disease progression such as dental caries and periodontitis .



C9

## Gingival's condition in smoker and non smoker patients in Dental Hospital, Faculty of Dentistry, Universitas Padjadjaran

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Smoking is one of risk factors for periodontal disease in adult with bleeding on probing as one of the clinical sign. This study aimed to understand about gingival conditions on patient of Dental Hospital, Faculty of Dentistry, Universitas Padjadjaran who is smokers and non smokers. This study is a descriptive study with survey techniques. Samples were taken by accidental sampling. Sample size in this study is 38 patients consisting of 20 patients who are non smokers and 18 patients who are smokers, both females and males which doesn't have systemic disorder. The parameter which is used for examining gingival's condition is Papilla Bleeding Index (PBI) Muhlemann (1977) with tooth selection by Ramfjord Teeth. Result shows that Bleeding on Probing (BOP) Index on smoker patients has a score 0.37, which means gingival condition on smoker patients was in a light level of inflammation. Bleeding on Probing (BOP) Index on non smoker patients has a score 0.64, which means gingival condition on non smoker patients was in a light level of inflammation too. The conclusion of this study is gingival condition on smokers and non smokers have a light inflammation.



C10

## Oral hygiene on smokers and non smokers patients in Dental Hospital, Faculty of Dentistry, Universitas Padjadjaran

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Oral Hygiene is an indicator of healthy teeth and oral cavity as a whole. The purpose of this study was to describe oral hygiene in smokers and nonsmokers patients in Dental Hospital, Faculty of Dentistry Universitas Padjadjaran. This type of study is descriptive study with survey technique. The sample was male and female patients, the number of respondents were 38 respondents consisted of 18 smokers and 20 nonsmokers. Oral hygiene was measured using criteria of OHI-S Greene and Vermillion (1964). The results show that the average value of oral hygiene index on smoker patients was 3.6 that included in the poor category and the average value of oral hygiene index on non smoker patients was 1.3 that included in the moderate category. It is to be concluded that the oral hygiene index value of smokers are in the poor category at most whereas the oral hygiene index value of non-smokers are in the moderate category at most.



C11

## Total client costs of dental care at Pedodontic Clinic, Dental Hospital, Faculty of Dentistry, Prince of Songkhla University

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In present, most patients choose to receive medical care at higher health care hospital instead of primary health care hospital which does not follow the referral system. Patient's bypassing lower health care level services is a common problem which leads to overcrowding at higher health care level facilities. This study aimed to investigate total client costs of dental care at Pedodontic clinic, Dental Hospital of Prince of Songkhla University (PSU) and to compare the total client costs between Pedodontic clinic of PSU Dental Hospital and primary health care hospital. Data collection was carried out by interviewing the child's guardians of 62 cases who were receiving dental treatment at Pedodontic clinic of PSU Dental Hospital during March 2011 to January 2012. The value of client's time accounted for largest component of total client costs. The cost per visit for child patient at Pedodontic clinic of PSU Dental Hospital ranged from 240.78 – 10,642.75 baht whereas at primary health care hospital the cost per visit ranged from 41.82 – 2,165.81 baht. The total client costs at Pedodontic clinic of PSU Dental Hospital was statistically higher than that of primary health care hospital ( $\alpha = 0.005$ ). The results provide a broader view on the cost of dental care service which might help Health Policy makers and treatment providers of the lower health care hospital to improve in resource availability and quality of care and also to strengthen primary health care services that make them attractive and credible in the eyes of the patients.



## CRANIOFACIAL & DENTAL EDUCATION CATEGORY

CD1

### CBCT assessment of buccolingual/palatal alveolar bone perforation in implant patients that used the orthopantomogram as preoperative planning

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Not many studies have been done regarding bone perforation after dental implant treatment among the patients. The aim of this research is to study the rate of buccolingual/palatal perforation in patients who received implant using conventional method of pre-operative planning. Patients who received preoperative planning using orthopantomogram from the year 2004 until 2010 from Hospital Universiti Sains Malaysia was collected and sampled using systematic random sampling method. Their implant were reviewed using CBCT. A total of 73 implants were assessed using Planmeca Romexis™ Software 2.3.1.R, which is a product of planmeca Oy,Finland. Each implant was viewed for presence of any buccolingual/palatal perforation. The rate of perforation was calculated using SPSS version 20. Data were analyzed statistically using Chi square signed ranked test. The  $p$  value obtained was 0.005 which is  $p < 0.05$ , indicating statistical significance. In conclusion, the rate of alveolar bone perforation in implant patient in this study is 37.9%. In maxillary implant, the percentage of perforation is 21.1% whereby, for mandibular implant, it is 54.5%.



CD2

## Brain Tumor Growth based on Craniofacial Medical Imaging

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The aim of this study was to measure brain tumour volume growth on craniofacial medical imaging data using open source software. This retrospective study was performed to assess tumour growth volume on 21 adult patients (12 men, 9 women; age range 23-61 years old with the mean age of 45 years) with brain tumour. The magnetic resonance imaging (MRI) and computed tomography (CT) imaging data were obtained from Hospital Universiti Sains Malaysia (HUSM). Each patient has taken at least two scans. The time for the subsequent scan after the first scan ranges from 1 month to 9 months. Interactive segmentation was conducted using open-source MITK 3M3 software to measure tumour volume. Tumour growth varied considerably between patients, 12 patients with increased tumour volume (volume range 0.8 ml – 138.9 ml; mean volume, 40 ml) and 9 patients with decreased tumour volume (volume range 4.3 ml - 45.8 ml; mean volume, 17.7 ml). For the 12 patients with increased tumour volume, the growth rate per month varies from 0.1 ml – 64.9 ml. However for the 9 patients with decreased tumour volume, the regression rate per month varies from 0.9 ml – 45.8 ml. Tumour growths or regression can be calculated from volume measurements on images acquired with standard MRI and CT imaging protocols. Screening data with tumour growth or regression volume measurement can assist clinicians and surgeons in better prognosis of the patients.





CD3

## Benign tumour (Ameloblastoma) measuring and description based on craniofacial imaging

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Ameloblastoma is a slow-growing, persistent and locally invasive benign tumour of epithelial origin. The aim of this study is to measure tumour volume based on craniofacial imaging and assess the rate of tumour growth before surgery. At the same time, we describe the incidence of ameloblastoma as well as their site of occurrence among patients of HUSM from the 2001-2011. Patients who are diagnosed with a histologically benign, previously untreated ameloblastoma at Orofacial Clinic between 2001 and 2011 have been included. Radiographical imaging were retrieved and analyzed using open-source MITK-3M3 software and ABC/2 algorithm. The ratio of male to female patients diagnosed is 2 :1. The range of age is from 16 to 67 years old with the mean age 35.68 and the most occurred age group is in the third decades of life (31.8%). Out of 22 patients, 21 ameloblastoma occurred in the mandible (95.5%) and 1 in the maxilla (4.5%). From 15 patients with craniofacial imaging available, 86.7% are unicystic and the others are multicystic (13.3%). The commonest site of ameloblastoma occurrence is at premolar to molar region (44.4%), followed by the region from third molar to condyle (41.6%). The mean volume of tumour during patient's first visit calculated by MITK-3M3 is 57.43ml (SD=47.18ml) while mean volume calculated by ABC/2 algorithm is 53.74ml (SD=41.45ml). Craniofacial imaging can determine the volume and volume changes of ameloblastoma. 3D imaging provides better preoperative visualization for the diagnosis, treatment planning and evaluation of ameloblastoma. It can also improve postoperative reconstruction plan.

# ORAL PRESENTATION



CD4

## Linear and angular cephalometric lip morphology among Malaysian Malays and Malaysian Chinese population

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The prime purposes of this study were to evaluate and compare the cephalometric linear and angular measurements of lip morphology among Malaysian Malays and Malaysian Chinese population. This is a retrospective study involving the collection and analysis of standardized lateral cephalometric radiographs of 70 Malaysian Malays and 70 Malaysian Chinese. The cephalometric radiographs were collected from subjects aged between 18 to 25 years who did not undergo any orthodontic treatment. Total 9 linear and 5 angular measurements were carried out on cephalometric radiographs using Winceph 8.0 software. Descriptive statistics, racial dimorphism and sexual dimorphism were analyzed using IBM SPSS Statistics Version 20.0. The reliability of the method was analyzed using Dahlberg's formula. Statistically significant disparities were found in the Malay population between males and females of lower lip to E line, upper lip thickness, lower lip thickness and nasolabial angle. Statistically significant disparities were also found in the Malaysian Chinese population between males and female of lower lip to s-line, upper lip thickness and Z-angle. Statistically significant disparities were found between Malaysian Malay and Malaysian Chinese population in lower lip to H line and lower lip to B line. Other measurements showed some similarities and variations but no significant differences were observed. In summary we attempt to establish the description and comparison of cephalometric lip morphology between the Malaysian Malay and Malaysian Chinese adults. Malaysian Chinese population revealed more protrusive lip compare to Malaysian Malay population. Cephalometric lip morphology is precise for the ethnic group, but these values should not be interpreted as treatment aim.



CD5

## Variation in tooth size and arch dimension in Malaysian subjects with torus palatinus

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Adequate tooth-size determination is required to ensure the satisfactory outcome of orthodontic treatment. This study aimed to determine the prevalence, size, shape, location of torus palatinus (TP) and torus mandibularis (TM), and to investigate their sex related differences. Also to determine variation in tooth size and arch dimension in subject with TP in Malaysian population. This is a retrospective study whereby 996 study models from 2002 to 2012 (11 years) were examined for the presence of tori. Subjects were distributed according to ethnicity (Malay, Chinese) and into four age groups. Study models with TP were measured for mesiodistal tooth width of the upper and lower permanent teeth (first molar to first molar), intercanine, intermolar width and arch length using an electronic digital caliper. Data were analyzed using SPSS 20. Results showed that the prevalence of TP and TM were 38.05% and 0.3%, respectively. TP was much more common in females than in males (39.64% versus 33.94%) meanwhile TM was higher in males than in females (0.2% versus 0.1%). In Malaysian Malays and Malaysian Chinese subjects with TP, the mesiodistal tooth width and arch dimension were consistently larger in females compare to males. The mesiodistal tooth width and arch dimension were consistently larger in Malaysian Chinese compare to Malaysian Malays. There were statistically significant differences in the mesiodistal tooth width (15, 14, 13, 12, 22, 24, 25, 33, 35) between Malaysian Malays and Malaysian Chinese ( $p < 0.05$ ). In conclusion, these measurements will allow clinicians to use specific standards in diagnosis and treatment planning that is most appropriate for their torus palatinus individuals.



CD6

## Phase III Elective Program satisfaction from students' perspective

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Phase III Elective Program is a research based program organized by the School of Dental Sciences, Universiti Sains Malaysia as part of the undergraduate degree requirements. A study was conducted in 2011 to assess the satisfaction/dissatisfaction of students with regard to its supervision, infrastructure, research environment, skills development, goals and standards. Minor improvements were implemented based on the dissatisfaction aspects. The study was performed to assess changes in satisfactions towards this program following minor improvements. A set of self-administered anonymous questionnaires were distributed to the 2011/2012 academic session's final year students comprising of forty-nine students (males 22.5% and females 77.5%). 91.9% agreed that supervisory support is important but only 65.4% were satisfied. 87.8% thought that the opportunities to develop research skills are important but only 65.3% were satisfied. 83.7% agreed that access to appropriate facilities is important but only 63.3% were satisfied. The research environment was important for 89.8% of students. However, only 65.3% of the students were satisfied. Overall, 92.8% agreed that this program was important but only 67.4% were satisfied. The current and previous data were compared statistically using Chi square and Fisher exact analyses. Only few improvements in satisfaction were observed particularly in the research environment and overall experience of the program. No significant improvements on other aspects of the program were determined suggesting that the changes implemented were unable to increase the students' satisfaction. In conclusion, more improvements and restructuring of program is recommended so that its full benefit can be delivered and appreciated by students.



CD7

## Oral health care programme among pre-school children in nurseries or kindergartens in Kubang Kerian, Kelantan: A pilot study

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Sound oral health program at child care centres can improve oral hygiene, thus reducing prevalence of caries in children. However, there lacks report on the practice of such programs in Malaysia. This study aimed to describe the practice of oral health care programme, types of oral health activities, and their barriers in kindergartens and nurseries in Kubang Kerian and its neighbouring areas. A convenient sample of centres that had operated over one year was selected into this cross sectional study. A person-in-charge from each centre was interviewed using self-developed and face-validated questionnaires by trained interviewers. Fifty-eight centres were surveyed, 17% nurseries, 48% kindergartens and 35% operating both as kindergartens and nurseries; and almost all have had children with dental problems (96.6%) and absentee due to toothache (64%). Most centres has an oral health related module (96.6%) and carry out tooth brushing activity (81%) but only 32% carry out the activity every day. Very few centres had teachers with formal training in oral health care (6.9%). Few centres taught anatomy (21%) and oral diseases to the children (35%) and; had dental check-up program (38%). Forty-seven per cent of the centres claimed to have appropriate material to conduct oral health activities. Lack of education material, cost, manpower and cooperation are among the barriers to conduct oral health activities in some centres. In conclusion, training in oral health care and relevant education material is still lacking which could set back the promotion oral health care activity in kindergartens and nurseries.

# ORAL PRESENTATION



CD8

## The influence of socioeconomic status on oral health among out patient that attend to Dental Clinic HUSM

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The concept of socioeconomic inequalities in oral health can be defined as differences in the prevalence or incidence of oral health problems between individual people of higher and lower socioeconomic status. This study aimed to determine the relationship between caries experience, periodontal status, dental prosthesis status and socioeconomic status among the patients attending dental clinic in Hospital Universiti Sains Malaysia (HUSM). This cross-sectional study involved 111 out patients aged 18 to 68 year old [Mean (SD) = 38.52 (13.47) years], where 46.4% were male and 67.1% were female. Clinical examination were carried out to identify caries experience (DMFT), periodontal status, oral hygiene, prostheses wearing status and patient's socioeconomic status were recorded. The association between socioeconomic status and oral conditions were analyzed by using one-way ANOVA test and independent t test. Mean (SD) of DMFT among patients was 9.51(6.27). Periodontal disease was found in 31.4% patients and good oral hygiene was found in 6.3% patients. Only 18.9% used dental prosthesis. Majority of patients (47.8%) were having secondary education, 79.3% were categorized in the low income group and 36.0% were unskilled workers. The mean number of missing tooth was decrease in the higher educational level ( $p < 0.000$ ). The middle income group showed significantly higher mean number of filled tooth compared to both low and high income group ( $p < 0.047$ ). The mean DMFT also appeared as a peak in the secondary education level ( $p < 0.004$ ) compared to primary and tertiary education. These findings support that oral health is influenced by socioeconomic status.



CD9

## Prevalence of abnormal swallowing pattern in 6 to 12 years old children in Bandung, Indonesia

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Infantile swallowing pattern changes into adulthood occur during development of oral function. There are several circumstances that could compromise the normal development of swallowing pattern, such as premature loss of primary teeth and bad oral habit. Therefore in some children the infantile swallowing pattern retained, called abnormal swallowing pattern. This condition contributes to delayed eruption, oral muscle imbalance, furthermore lead into development of malocclusion. The aim of this study is to assess the prevalence of abnormal swallowing pattern in 6-12 years old children in Bandung, Indonesia. This descriptive study was using survey technique. Samples were 552 children with healthy condition and did not undergoing orthodontic treatment. Samples were chosen by cluster random sampling technique, randomly from 5 out of 30 districts in Bandung. Abnormal swallowing pattern was diagnosed by clinical appearance while swallowing such as lip seal negative, no contact between teeth, and tongue is against or between teeth. Prevalence was calculated based on prevalence formula (number of children who had an abnormal swallowing pattern is divided by the total number of children examined and multiplied by 100%). The result showed that 137 out of 552 children had abnormal swallowing pattern. Prevalence was various from each district due to different psychological characteristic of each district. According to literature, swallowing pattern as one of maturation process was also influenced by psychological factor and this research proves it as well. The prevalence of abnormal swallowing patterns in children age 6-12 years old in Bandung was nearly a quarter (24.81%) of the total number of children examined in this study.



CD10

## Orthognathic surgery for patients with dentoskeletal class III malocclusion in Dr. Hasan Sadikin State Hospital from 2006-2011: a retrospective study

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Dentoskeletal class III malocclusion is a condition which the relation of the teeth in mandibular arch is more anteriorly positioned than maxillary arch and accompanied with mandibular prognathism. This retrospective study was conducted to study the number of dentoskeletal class III malocclusion patients who were treated by orthognathic surgery and the most used surgical technique for this cases at the Department of Oral and Maxillofacial Surgery of Dr. Hasan Sadikin State Hospital Bandung during the period of 2006-2011. The research showed that 24 of 26 orthognathic surgery patients had dentoskeletal class III malocclusion and from those 24 patients, 16 patients had anterior open bite. The bimaxillary surgery were used for 18 from 24 patients that has dentoskeletal class III malocclusion with the most frequent surgical technique used for these is the combination of Le Fort I osteotomy, bilateral sagittal split osteotomy, and genioplasty with 8 of 18 patients. In conclusion, most of orthognathic surgery patients with dentoskeletal class III malocclusion were treated with bimaxillary surgery with the combination of Le Fort I osteotomy in the maxilla, bilateral sagittal split osteotomy, and genioplasty in the mandible being the most frequent techniques used.



# POSTER PRESENTATION



P1

## An in vitro genotoxicity study of Biphasic Calcium Phosphate using Ames test

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Biphasic Calcium Phosphate (BCP) is being engineered as a bone substitute material that can be widely used in maxillofacial, dentistry and orthopaedic applications. The objective of this study was to evaluate the genotoxicity of BCP using Bacterial Reverse Mutation Assay (Ames test). This was a descriptive experimental study performed on *Salmonella typhimurium* TA1538 strain using pre-incubation method in the presence and absence of an exogenous metabolic activation system. The bacteria were incubated for 48 hours at  $37\pm 0.5^{\circ}\text{C}$  before the colony growth or revertant colonies were counted. Data obtained were analyzed by using non-statistical method. The investigation of the genotoxic reaction on the test material revealed that the number of revertant colonies in strain with and without S9 mix was less than twice that of the negative control for all tested concentrations. In conclusion, the results of the tests showed that BCP was non-mutagenic under the present test conditions.

P2

## *In vitro* study of antimicrobial effect of honey and ginger against oral pathogens

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Honey and ginger had been proven in many studies to have antimicrobial properties. But, different types of honey and ginger have different ability against bacterial. This study was aimed to evaluate the antimicrobial effect of local honey and gingers against oral pathogens. This is an experimental *in vitro* study whereby some oral pathogens were tested with extracts of Tualang honey, local Malaysian ginger and mixture of both honey and ginger extracts. The pathogens were *Streptococcus mutans*, *Lactobacillus salivarius*, *Pseudomonas aeruginosa*, *Haemophilus influenza*, and *Staphylococcus aureus*. Each pathogen was tested with different concentrations of the material extracts using agar-well diffusion method. Each pathogen was lawn on an agar plate. Well of 5 mm in diameter, 4mm deep and about 2 cm apart were punched in the agar with a sterile cork-borer. Hundred milliliter of the extracts were dropped into each well which filled them respectively to fullness. The setup was allowed to stabilize for 3 hours before being incubated at 37C for 24 hours. The mean zone of inhibition (ZOI) was thereafter measured in millimetres using caliper, for all the individual isolates. A positive control well was equally filled with gentamycin (32 µg/mL) while sterile distilled water served as negative control. The results showed that there was no ZOI recorded for any pathogen tested for all the materials. In conclusion, local Malaysian Tualang honey and local Malaysian ginger do not have expected antimicrobial properties, unlike the honey and ginger from other regions in the world.

# POSTER PRESENTATION



P3

## A study on clove oil *in vitro*

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Essential oils have been proven to possess far greater antimicrobial activity, compared to synthetic chemicals. The aim of this project is to study the antibacterial activity of clove oil against *Streptococcus mutans*, *Staphylococcus aureus* and *Candida albicans*. Many studies have reported that clove essential oil displays antimicrobial, antifungal, anticarcinogenic, antiallergic and antimutagenic activity. Concentrated clove oil was diluted with DMSO (Dimethyl Sulphoxide) into different concentrations, and organisms were cultured on the plates. Antibiotic disks with different concentrations of clove oil were put onto the culture media. The plates were incubated for 24 hours at 37°C. Results were obtained via measuring the diameter of inhibition of the antibiotic disks. The concentration which clove oil works the best in inhibiting the growth of above microorganism is 80% for *Streptococcus mutans*, 75% for *Staphylococcus aureus* and *Candida albicans*. It is proven that clove oils have the best antimicrobial activity at the concentration of 75-85%.

P4

## The Antimicrobial Effects of *Nigella Sativa* (Black Seed) against Oral Bacteria – an *in-vitro* Study

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*Nigella Sativa* is the common fennel flower plant of the buttercup family. It is a type of herb that has been used in therapeutics for hundreds of years; however, little attention has been paid to its effects on oral bacteria. The aims of this study were to determine the antimicrobial effects, the minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) of *Nigella Sativa* against oral bacteria. These were carried out using agar well diffusion method and Trypticase soy broth method. Nine(9) types of oral bacteria namely *Streptococcus mutans*, *Streptococcus sanguis*, *Streptococcus oralis*, *Streptococcus sobrinus*, *Staphylococcus aureus*, *Lactobacillus Salivarius*, *Enterococcus faecalis*, *Pseudomonas aeruginosa* and *Eschericia coli* were used in this study. Results showed that water extract of *Nigella Sativa* did not exhibit any antibacterial effects against oral bacteria. The ethanol extract of *Nigella Sativa* only demonstrated antibacterial effects against *Streptococcus sanguis*. The MIC value was 1g/ml and MBC value was 1g/ml. The MIC value of *Nigella Sativa* could be utilized as baseline data for future potential antimicrobial agents or drugs. Further research regarding the antimicrobial effects of *Nigella Sativa* should be carried out to deduce the active components of this plant for its antibacterial effects.



P6

## *In vitro* antimicrobial effects of commercially available herbal-based mouthwashes in Malaysia

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Mouthwash is a solution which is used for chemical plaque control to fight against the microorganisms that cause dental caries and infection inside the oral cavity. This study aimed to determine the antimicrobial properties of three commercially available herbal-based mouthwashes i.e. OX, Pesona and Watsons against six oral pathogens related to caries and to oral fungal infections. The experiment was carried out *in vitro* using *Streptococcus sobrinus*, *Streptococcus mutans*, *Lactobacillus salivarius*, *Staphylococcus aureus*, *Pseudomonas aeruginosa* and *Candida albicans*. Antibacterial and antifungal efficacy of herbal-based mouthwashes were tested using agar well diffusion and disk diffusion methods. Chlorhexidine gluconate (Oradex mouthwash) and sterile distilled water served as positive and negative controls respectively. Diameter of inhibition zone (mm) was measured using digital caliper after 24-48 hours. Results showed that Pesona mouthwash emerged as the most effective herbal-based mouthwash compared to Watsons ( $p=0.377$ -agar well,  $p=0.295$ -disk) and OX mouthwashes ( $p=0.037$ -agar well,  $p=0.146$ -disk). When compared to Oradex mouthwash (chlorhexidine), Pesona mouthwash also showed similar antimicrobial efficacy as Oradex mouthwash ( $p=0.631$ -agar well,  $p=0.873$ -disk) against the tested microorganisms. In conclusion, Pesona, Watsons and OX are effective as antibacterial and antifungal mouthwashes against dental caries causing microorganisms.

P7

## Association between oral hygiene status and halitosis among smokers and non-smokers in Kelantan, Malaysia

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Accumulation of food debris and dental bacterial plaque on teeth and tongue has been described as the most likely cause of halitosis. The purpose of the study is to compare the oral hygiene status and halitosis level among smokers and non-smokers. This comparative cross-sectional study was conducted among 100 smokers and 100 non-smokers aged 18- 50 years old [Mean (SD) = 33.15 (10.63) years old] residing in Kota Bharu. Halitosis level was measured using Halimeter ® (Interscan Corporation, Chatsworth, CA). Subjects were instructed to refrain from consuming foods containing garlic, onions and strong spices, alcohol, and using mouthwashes 48 hours prior to the examination. The halitosis levels were quantified by recording volatile sulphur compounds three times at 3-min intervals, resulting in a mean halitosis score. Oral hygiene status was determined by using Simplified Oral Hygiene Index. Independent t test was used to compare the volatile sulphur compounds concentration between smokers and non-smokers and chi-square test was used to compare the level of halitosis and oral hygiene status. Significantly high halitosis level was found in smokers ( $p < 0.001$ ). Likewise, volatile sulphur compounds concentration was significantly higher among smokers ( $p < 0.001$ ). Non-smokers were having better oral hygiene than smokers and the difference is significant ( $p < 0.001$ ). In conclusion, the findings demonstrated that there is significant higher level of halitosis and poorer oral hygiene in smokers than non-smokers.

P8

## A 7-year retrospective study of the survival rate of fixed partial denture and post & core

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The purpose of this retrospective study was to evaluate the success rate and the factors which lead to complications after treatments done by year 5 students. The quality of work done by year 5 dental students USM can be checked through the survival time to determine the success rate of work done. The folders of 144 patients, who had undergone treatments for post and core and fixed partial denture, done by students from January 2004 until January 2011 were analyzed. There were 72 cases of post and core, and 112 cases of fixed partial denture data were recorded. The following parameters were used in the evaluation: date of receiving and completing treatment, location of tooth, and cause of failure. After the data was collected, the survival probability was assessed for each year using Kaplan-Meyer analysis. The calculated survival rate for post and core for duration of 1 year was 94.44% and 94.29% during second year. It has 100% success rate for other years. For fixed prosthesis, the survival rate for duration of 1 year was 97.6%, while for survival rate of 7 years was 50.0%. With most common cause of failure was due to dislodged prosthesis. Molar had highest failure rate (45.4%), followed by premolar (27.3%) and anterior tooth (27.3%). Posterior tooth has higher rate for failure (72.7%). In conclusion post and core and fixed prosthesis have high survival rate in early years and decrease throughout the years. Early failure is most likely due to clinical errors.

P9

## The relation between oral cancer and ABO blood group

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ABO blood group has been related to several malignancies such as stomach cancer with A blood group. The aim of this study is to determine the prevalence of ABO blood group in oral cancer diagnosed in HUSM since January 2004 to December 2011. This is a retrospective study where patient which has been diagnosed with oral cancer were traced from tumor registry and ABO blood group were retrieved from medical record. Factors that contributing to oral cancer such as age, sex, race, and risk factors (ie. cigarette smoking, alcohol consumption and betel nut chewing) were recorded. A total of 57 patients were included in the study. O Blood group preceding other blood group with 40.4%, followed by B blood group with 35.1%, AB blood group with 15.8% and A blood group with 8.8%. 61.4% of the patients were males while females accounted only 38.6%. Malay patients have the highest percentage 86.0%, followed by Chinese patients with 10.5%, and Indian patients and other races accounted 1.8% respectively. 43.9% of the patient is a smoker, 21.1% were betel nut chewer and only 3.5% of them drink alcohol. Based on this study, it can be concluded that there is an association between oral cancer and O blood group.



# POSTER PRESENTATION



**P10**

## Knowledge of dental and oral health patients treated by dental students in professional program

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Behavioral maintenance of dental and oral health is very important as it starts with improving dental and oral health knowledge. It can be done by dentist giving Dental Health Education (DHE) to the patient and can be given formally by suggestions of pre/post operation (chairside-talk) when providing treatment. The purpose of this study is to assess knowledge of oral health in patients who were treated by professional dentistry program students in Dental Hospital, Padjadjaran University, because professional dentistry program students is one of the cadre in dentistry. This study was a descriptive study with survey technique. Data were collected using a questionnaire sheet. Sample of this study were patients who were treated by dentistry professional program students in Dental Hospital, Padjadjaran University, which was purposive random sampling method, and the number of samples obtained were 224 patients. The results showed that patients treated in the dentistry professional program students RSGM FKG UNPAD have a good level of knowledge with a total of 116 respondents (51.79%). The second highest frequency of 82 respondents (36.61%) had a moderate level of knowledge while 26 respondents (11.61%) were lacking in knowledge. In conclusion, the patients who had received care from the dentistry professional program students in Dental Hospital, Padjadjaran University has a good level of knowledge about oral health.

P6

## Inhibitory concentrations of Gambir (*Uncaria gambir* Roxb) Catechins against *Streptococcus mutans*

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Catechin, extracted from gambir (*Uncaria gambir* Roxb) is a major component of polyphenol compounds. The catechins compound acts as antibacterial agents. The aim of this study was to test the inhibitory concentration of gambir catechin extract against *Streptococcus mutans* as these bacteria play a role in the formation of dental caries. This is a laboratory experiment testing the inhibitory concentration of gambir catechin extract, through Kirby Bauer disk diffusion method on plates TYCSB for 1 x 24 hours. The test *Streptococcus mutans* was isolated from saliva. The used suspensions of bacteria were made according to standard turbidity of Mc Farland 0.5 which are each a 1 ml suspension containing  $1.5 \times 10^8$  bacteria. Through freezing method, the powder of catechin gambir extract was obtained. Catechins concentrations of 80% produced the largest inhibition, with an inhibitory diameter of 1,085 cm. The lowest inhibition produced by concentration of catechins with 20% inhibition at 0,615 cm inhibitory diameter. The result showed that the higher concentration of catechins, the greater inhibition obtained, conversely the lower the concentration of catechins, the lower inhibition were produced. Based on this research catechins have antibacterial property of being able to lyse the bacterial cell wall.