80th ANNIVERSARY
FACULTY OF DENTISTRY
CHULALONGKORN UNIVERSITY

22nd Research Day

STAY HOME
EDITION

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Message from the Dean

Chulalongkorn University Faculty of Dentistry Colleagues, Students, Alumni, and Friends:

Welcome to the 32nd Annual Chulalongkorn University Faculty of Dentistry Research Day abstract book.

We are proud of our excellence in research as we strive to improve the oral health of Thai people and around the world. Our annual Research Day is the day we showcase our students' and their faculty mentors' accomplishments. Dental students from the 2019 research day recently won first place in the IADR Unilever Hatton Award, the first time that students from Southeast Asia have received such a prestigious award.

2020 also marked the 80th anniversary of our Faculty of Dentistry. Research has been an essential part in our Faculty ranking first in Thailand. Research Day will continue to be an important part of our Faculty's success.

The objective of Research Day is to encourage our students to share their knowledge and to gain experience in research presentation. This year, which is the 32nd Research Day, we have 32 projects from students and mentors. Unfortunately, we could not hold Research Day as planned due to the COVID-19 pandemic. We, therefore, collected the abstracts for the academic year 2019 in this book. Because we use a digital platform for the book, some authors have elected not to publish their abstracts and to show only the topics and authors since they plan to further develop their work for competition, publication, or patents.

I want to thank the research committee for their continuing hard work. I wish all of the faculty members and students success and we are confident that our research will translate into improved oral health for all.

Assistant Professor Suchit Poolthong D.D.S., Ph.D.
Dean of Faculty of Dentistry, Chulalongkorn University

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Intermittent compressive force induced alpha-smooth muscle actin expression required periostin

Manosuttikij B*, Panjasiri N, Putta C, Chaikiawkeaw D, Pavasant P
Department of Anatomy, Faculty of Dentistry, Chulalongkorn University

Will be published elsewhere

Supported by Dental Research Fund, Dental Research Project 3200502#1/2019, Faculty of Dentistry, Chulalongkorn University

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02

Effect of rinsing with salt solution on biofilm of Streptococcus mutans and Lactobacillus casei

Mahatdachkul K*, Tantisoonthorn B*, Sawaengsuksant S, Ampornaramveth R

Department of Microbiology, Faculty of dentistry, Chulalongkorn University

Objective Salt solution is natural substances traditionally used in Thailand to relieve pain and ulcer in oral cavity. However, there is no study of short-term effect of salt solution on cariogenic bacteria. The aim of this research is to study the antibacterial effect of salt solution rinse on *Streptococcus mutans* and *Lactobacillus casei.*

Materials and methods There are 3 steps included in this study. The first one is to determine the Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration (MBC) of salt solution on *S. mutans* and *L. casei.* The second step is to determine the effect of rinsing by salt solution, sterile water and chlorhexidine on S. mutans biofilm formation. The last is to determine whether rinsing with salt solution alter plaque formation and amount of *S. mutans* and total bacterial count in the saliva of volunteers.

Results The MIC and MBC of *S.mutans* are determined as 0.5M and 2M, and *L. casei* are both 1M NaCl. Compared with distilled water, salt solution at every concentration, ranging from 0.25M to 2M, didn't significantly alter *in vitro* biofilm formation capability of *S. mutans* as determined by optical density. While significant reduction in biofilm formation was found in the group rinsing with Chlorhexidine. From in vivo study, there was no different in plaque score, *mutans streptococci* and total bacterial number between the group rinsing with salt solution and the control groups.

Conclusion High concentration of NaCl has antimicrobial effect. However, rinsing with salt solutions demonstrated no significant effect on *in vitro* biofilm formations, plaque index and number of bacteria in saliva.

Supported by Dental Research Fund, Dental Research Project 3200502#2/2019, Faculty of Dentistry, Chulalongkorn University

03

Exercises on MOOG Simodont® dental simulator improve psychomotor skills for dental students (a pilot study)

Thaweechumpol K*, Banyam J*, Mekkapruet N*, Vacharaksa A

Department of Microbiology, Faculty of Dentistry, Chulalongkorn University

Objective To investigate whether practices on MOOG Simodont® dental simulator can improve psychomotor skills and confidence of 2nd and 3rd year dental students.

Materials and methods Forty participants were randomly recruited from dental students of the 2nd and 3rd academic year of 2018, faculty of dentistry, Chulalongkorn University. All participants were pre-tested for a confidence score using questionnaire and psychomotor skills using O'connor test. Then, participants watched the video clip about tooth preparation and instruments. Some participants (practice group) practiced and finished 6 exercises on MOOG Simodont® in 2 weeks. Finally, all participants took the test of class II cavity preparation on a plastic tooth in a phantom head followed by a post-test.

Results O'connor post-test demonstrated that psychomotor skills improved significantly ($P<0.05$) except the control group in 3rd year students. Practicing on the dental simulator had no influence on the psychomotor skill improvement measured by O'connor test. Preparation test demonstrated that the practice group had preparation skills significantly better than the control group ($P=0.009$) in both 2nd and 3rd year students. Improvement of the 2nd year students is similar to that of the 3rd year students ($P=0.197$). The confidence scores in 2nd year students are significantly increased in post-test ($P<0.001$), however, 3rd year students expressed no differences ($P=0.282$). In addition, practicing on the dental simulator had no influence on the confidence level.

Conclusion The exercises on MOOG Simodont® dental simulator improved preparation skills, but not psychomotor skills and confidence score.

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04

Histomorphometric analysis of root treatment with iloprost in immediate rat tooth avulsion model

Jenboonthai N*, Nisaeh N, Teantongdee A, Osathanon T[1], Limjeerajarus C[2]

[1]Deparment of Anatomy, [2]Department of Physiology, Faculty of Dentistry, Chulalongkorn University

Will be published elsewhere

Supported by Dental Research Fund, Dental Research Project 3200502#4/2019, Faculty of Dentistry, Chulalongkorn University

05

The effect of professionally applied remineralizing agents on the enamel and dentin affected with hypocalcified amelogenesis imperfecta

Navankasattusas M*, Phuckdeedindan M* ,Yiamwattana N*, Porntaveetus T
Genomics and Precision Dentistry Research Unit, Department of Physiology,
Faculty of Dentistry, Chulalongkorn University

Will be published elsewhere

Supported by Dental Research Fund, Dental Research Project 3200502#5/2019, Faculty of Dentistry, Chulalongkorn University

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06

Prevalence of intraosseous jaw lesions from Chulalongkorn Dental School

Chiramanaphan K*, Tevavichulada V*, Tangwongwarachai S*, Dhanuthai K

Department of Oral Pathology, Faculty of Dentistry, Chulalongkorn University

Will be published elsewhere

Supported by Dental Research Fund, Dental Research Project 3200502#6/2019, Faculty of Dentistry, Chulalongkorn University

07

A retrospective study of Giant cell lesions of jaws in a group of Thais (2004 – 2018)

Ouearrepan Y*, Wongsuwannakorn T*, Santiworanart N, Chantarangsu S

Department of Oral Pathology, Faculty of Dentistry, Chulalongkorn University

Objective To retrospectively analyze the prevalence, demographic, clinical, radiological and distribution of various types of giant cell lesions of jaws observed in a 15-year period (2004 to 2018) in a group of Thais at the Department of Oral Pathology, Faculty of Dentistry, Chulalongkorn University.

Materials and methods Biopsy records of the Department of Oral Pathology, Faculty of Dentistry, Chulalongkorn University between January 2004 and December 2018 were reviewed for the giant cell lesions, composed of central giant cell granuloma (CGCG), peripheral giant cell granuloma (PGCG), simple bone cyst, hyperparathyroidism and cherubism disease. Clinical characteristics including age, gender, anatomical location, symptoms, radiographic finding were gathered for the analysis.

Results This study retrospectively investigated 11,086 biopsy cases in a 15-year period, 48 cases (0.43%) are diagnosed as giant cell lesion. Definitive diagnosis are simple bone cyst for 29 cases (60.4%), peripheral giant cell for 9 cases (18.8%) , central giant cell granuloma for 4 cases (8.3%), foreign body giant cell granuloma for 3 cases (6.3%), Cherubism for 2 cases (4.2%) and hyperparathyroidism for 1 cases (2.1%). The age of the patient ranged from 5 to 74 years with the mean ± SD = 33.50 ± 17.94 years which most of them were female (66.7%). The factors which are significantly related to giant cell lesion are sex, anatomical location and radiographic appearance. The posterior areas of mandible were the most frequent occurrence sites (60.4%). On radiographic finding, most of the giant cell lesions appeared as unilocular radiolucency (45.8%) and most of the cases were asymptomatic (47.9%).

Conclusion Giant cell lesions are the uncommon oral and maxillofacial lesions in a group of Thais. This study revealed simple bone cyst was the most frequently found disease and there was a female predominance. The posterior area of mandible were the most frequent occurrence sites. Most patients exhibited no symptoms while radiographic features appeared unilocular radiolucent lesions.

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08

IgG4-positive plasma cells in oral inflammatory conditions

Jiamwisitkul T, Klongrotpong R, Isranusorn S*, Phattarataratip E
Department of Oral Pathology, Faculty of Dentistry, Chulalongkorn University

Objective The diagnosis of IgG4-related disease (IgG4RD) is currently relied on the clinical, histopathologic as well as laboratory findings. The IgG4/IgG-positive plasma cell ratio of more than 0.4 and the number of IgG4-positive plasma cells/HPF of more than 10 cells have been suggested as one of the criteria for diagnosing IgG4RD. This study aimed to examine the frequency of IgG4-positive plasma cells among different oral inflammatory conditions.

Materials and methods Immunohistochemical study was used to analyze the expression of IgG4 and IgG in plasma cells of 5 angiolymphoid hyperplasia with eosinophilia (ALHE), 5 lichen planus (LP), 5 lichenoid mucositis (LM), 6 traumatic ulcerative granuloma with stromal eosinophilia (TUGSE) and 5 non-specific ulcers (NSU). The number of IgG4-positive plasma cells and the IgG4/IgG ratio were assessed.

Results IgG4-positive plasma cells were present in all except one LP case. The mean number of IgG4-positive plasma cells/HPF were 58.40±71.62, 7.69±7.02, 15.49±21.43, 67.97±78.08, 23.38±32.11 and the mean IgG4/IgG-positive plasma cells ratio were 0.39±0.18, 0.22±0.17, 0.17±0.20, 0.36±0.29, 0.42±0.31 for ALHE, LP, LM, TUGSE, and NSU, respectively. The IgG4/IgG+ plasma cell ratio of more than 0.4 was noted in 60% of ALHE and NSU, 20% of LM and 16.7% of TUGSE. In addition, the number of IgG4-positive plasma cells of more than 10/HPF was noted in 80% of ALHE, 40% of LP, 40% of LM, 83.3% of TUGSE and 60% of NSU.

Conclusion IgG4-positive plasma cells are ubiquitous in oral inflammatory conditions. The level of IgG4-positive plasma cells immunohistochemically needs to be cautiously interpreted in relation to other findings in the context of these conditions to avoid overdiagnosing IgG4RD.

Supported by Dental Research Fund, Dental Research Project 3200502#8/2019, Faculty of Dentistry, Chulalongkorn University

09

A comparison of surface roughness of polymethylmethacrylate and thermoplastic acetyl resin after adjustment and re-polishing

Thongsawat S, Sakwit W, Umnajsasithorn S*, Chaiteerapapkul P
Department of Prosthodontics, Faculty of Dentistry, Chulalongkorn University

Objectives This research aims to study and compare the surface roughness of polymethylmethacrylate (PMMA) and thermoplastic resin (DuraFlex) before and after adjustment and repolishing.

Materials and methods 80 specimens (3x9x24 mm), 40 specimens, each of PMMA, DuraFlex were fabricated and divided into four groups; 1. No further adjustment 2. Adjusted with plain tungsten carbide burs 3. Adjusted with plain tungsten carbide burs and re-polished with silicone bur (chair-side method) and 4. Adjusted with plain tungsten carbide burs and re-polished with pumice and a rag wheel (laboratory method). All specimens were polished by one examiner. Following the polishing, surface roughness will be evaluated by using non-contact profilometer. Surface roughness (Ra) was evaluated and then calculated into means and standard deviations. Two-way ANOVA was used to determine significant differences in mean Ra, with included factors being material type and re-polishing regimen.

Results Surface roughness of PMMA re-polished by chair-side method was not significantly different from the control group, but significantly different from PMMA re-polished by laboratory method and carbide group. While surface roughness of PMMA re-polished by laboratory method was different from control and chair-side method groups significantly. Surface roughness of DuraFlex re-polished by both methods was significantly different from control and carbide groups.

Conclusion PMMA re-polished with chair-side method was significantly different from PMMA re-polished with laboratory method, but was not significantly different from control group. Moreover, DuraFlex should be kept to minimum adjustment because the adjustment causes the significant surface roughness which could not be rectified by any re-polishing method.

Supported by Dental Research Fund, Dental Research Project 3200502#9/2019, Faculty of Dentistry, Chulalongkorn University

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10

Flexural strength of repaired acrylic denture base material with chemical surface treatments after 0.5% sodium hypochlorite immersion

Sittisuk T*, Chatthani P*, Saejear W*, Wiwatwarrapan C
Department of Prosthodontics, Faculty of Dentistry, Chulalongkorn University

Objective To compare the flexural strength of repaired denture bases treated with MF-MA, MMA and no surface treatment before and after immerse in 0.5% sodium hypochlorite.

Materials and methods Eighty heat-polymerized acrylic resin (Meliodent) specimens were divided into four groups: group I was intact specimens without repairing (control group). In group II to IV, specimens were cut in the middle and beveled to 45-degree profile. Specimen surfaces in group III were treated with methyl methacrylate (the liquid part of Unifast trad) for 180 seconds. Specimen surfaces in group IV were treated with methyl formate (Merck) methyl acetate (Merck) solutions at ratio 75:25 for 15 second. Then, specimens in group II to IV were repaired with auto polymerized acrylic resin (Unifast trad). Each group was divided into two subgroups. Subgroup I specimens were the control group. Subgroup II specimens were immersed in 0.5% NaOCl solution for ninety days. All specimens were performed a three-point loading test by a universal testing machine. Data were analyzed using one-way ANOVA at $p < 0.05$. Failure analysis was recorded for each specimen by scanning electron microscopy.

Results After being immersed in 0.5% sodium hypochlorite for ninety days, the flexural strengths of subgroup I and II in group III and IV showed no significant differences ($p > 0.05$). From scanning electron microscopy, the result showed 30% cohesive failure and 70% adhesive failure in group II, 65% cohesive failure and 35% adhesive failure in group III, 80% cohesive failure and 20% adhesive failure in group IV.

Conclusion There is no significantly different flexural strength of repaired denture base which the surfaces are treated with MF-MA before and after immersed in 0.5% sodium hypochlorite.

Supported by Dental Research Fund, Dental Research Project 3200502#10/2019, Faculty of Dentistry, Chulalongkorn University

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The effect of heat-polymerizing method on color stability of denture artificial teeth

Thanawat A*, Thanathip S*, Nussaba T*, Pimrumpai R
Department of Prosthodontics, Faculty of Dentistry, Chulalongkorn University

Objective Color stability of artificial teeth plays an important role in esthetics of dental prostheses. The purpose of this study was to investigate the effect of heat-polymerization on color stability of denture artificial teeth.

Materials and Methods Three different brands of acrylic artificial teeth: Livera (LA), Yamahashi (YA) and Major Dent (MA) and 2 different brands of composite artificial teeth: Yamahashi PX (YC) and Endura (EC) were included in this study. Total of 100 maxillary central incisors (20 from each group) were subjected to heat-polymerization. Boiling temperature was divided into 2 cycles; 80°C for 4.5 hours then 95 °C for 5.5 hours. After flask cooling for 24 hours, the specimens were removed. Each specimen was pressed onto putty-type polyvinyl siloxane in order to measure colour change in the same area of artificial teeth. Color, at cervical third and incisal third, was recorded before and after polymerization process by spectrophotometer (UltraScan-Pro Hunterlab®) in CIE L*a*b system. Colour differences (ΔE) was calculated. A ΔE of ≤ 3.3 was considered clinically acceptable. The data were evaluated by 1-way ANOVA and the Tukey HSD test ($\alpha = .05$).

Results The ΔE of LA, YA, EC, MA and YC at incisal third were 4.41±0.56, 2.88±0.57, 0.76±0.57, 0.75±0.24 and 0.63±0.24 respectively. And the results of LA, YA, EC, MA and YC at cervical third were 4.59±1.26, 2.44±1.08, 0.59±0.36, 0.81±0.61 and 1.22±0.78 respectively. The highest ΔE values of LA were obtained; these values were significantly higher than those obtained for other brands ($P<.05$) and beyond clinical acceptable level.

Conclusion The colour of LA were changed as significantly clinically both incisal and cervical area after heat-polymerization process. On the other hand The ΔE values are clinically acceptable for the YA, EC, MA and YC.

Supported by Dental Research Fund, Dental Research Project 3200502#11/2019, Faculty of Dentistry, Chulalongkorn University

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Prevalence of sinus septum and its morphology in Thai population: a retrospective analysis using cone-beam computed tomography

Cheangcharoon C, Naiyawat T, Chuchawengwong P*, Chengprapakorn W[1], Pittayapat P[2]

[1]Department of Prosthodontics, Faculty of Dentistry, Chulalongkorn University

[2]Department of Radiology, Faculty of Dentistry, Chulalongkorn University

Objective The aim of this study was to investigate the maxillary sinus septum and its morphology in Thai population by using cone-beam computed tomography (CBCT).

Materials and methods CBCT scans from 300 Thai patients, 209 females and 91 males, mean age of 49.22 years old, were retrospectively collected from the hospital database of the Faculty of Dentistry, Chulalongkorn University, Bangkok, Thailand. All CBCT images were viewed and evaluated on Infinitt® software. The evaluation of maxillary sinus septum, including types of septa, associated sinus walls, location and completion of the septa, was performed by 2 observers. 60 CBCT scans were randomly selected for re-evaluation after 4 weeks. Patients' demographic data were recorded. Descriptive analysis of the data was done.

Results A total of 567 maxillary sinuses were included in this study and 241 septa were found. Most septa were located on the medial wall of the maxillary sinus (85.06%), and commonly found in the region of the first and second molars (41.49%). Most maxillary sinuses contained only 1 septum (88.38%). Most of the septa attached to 3 sinus walls (73.03%). 42.74% of the 3-wall-septa attached to the floor, the lateral wall and the medial wall of the sinus. The major orientation of septa was not parallel to any planes (48.96%). Most septa separated sinus compartments completely (83.83%).

Conclusion Maxillary sinus septa are common anatomical structure. They are often found in the first or second molar region on the floor of the maxillary sinus. The findings are useful information for dentists to prevent possible complications during sinus augmentation procedures.

Supported by Dental Research Fund, Dental Research Project 3200502#12/2019, Faculty of Dentistry, Chulalongkorn University

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Dental age estimation of Thai adolescents by using third molar maturity index

Tanthanapinan T, Pholwong S*, Chaysan S, Sinpitaksakul P, Pittayapat P
Department of Radiology, Faculty of Dentistry, Chulalongkorn University

Objective The aim of this study was to find the specific cut off point using third molar maturity index introduced earlier by Camiriere et al. in Thai population.

Materials and methods 1000 digital panoramic radiographs were retrospectively collected from the hospital database at the Radiology clinic, Faculty of Dentistry, Chulalongkorn University. The samples were Thai, age 15-24 years old. These samples were categorized into 10 age groups. The width of the root apices and tooth length of mandibular third molars were measured and the third molar maturity index (I_{3M}) was calculated based on the method published by Cameriere et al. The observation was carried out by two observers. Twenty percent of the samples were randomly selected for repeated measurements after 4 weeks. Statistical analysis was performed.

Results The new specific cut-off value of (I_{3M}) in Thai population was 0.1255. The sensitivity and specificity were 84.3% and 78.3%, respectively. Youden index was 0.626 which was closer to 1 than the cut-off value reported by Cameriere et al. (0.595) when applied the Thai population. The probabilities of correctly classified individuals were 89.7% in males and 87.0% females. Intraclass correlation coefficients showed excellent intra-observer (0.993) and inter-observer reliability (0.991).

Conclusion This study reported a new cut-off point of I3M specific for Thai population. If the calculated I_{3M} of an individual is <0.1255, there is a high probability that the person is 18 years old or older. The application of this new finding will be useful for discriminating minors in illegal labour and migrants in Thailand.

Supported by Dental Research Fund, Dental Research Project 3200502#13/2019, Faculty of Dentistry, Chulalongkorn University

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The efficacy of Occlu Dust Guard in the control of dust particles during the grinding and polishing of acrylic pieces

Kittisupaporn W*, Buraphanawibun P*, Seingpirohlerd P*, Vanichanon P
Department of Occlusion, Faculty of Dentistry, Chulalongkorn University

Objective To evaluate the efficacy of a dust collector “Occlu Dust Guard” in reduction of dust particles concentration generated from grinding/polishing acrylic pieces and compare the concentration of dust particles at various positions in dental clinic.

Material and methods Twelve horse-shoe acrylic pieces were prepared and ground within the defined area (2.5x1.5cm) using carbide bur (no.1509) with a chairside micromotor (Marathon-N7) continually 60 seconds for 10 times under 2 situations (with/without Occlu Dust Guard). The repeated procedure was done using silicone bur. Dust particles (PM2.5 and PM15) were collected and measured in concentration by DUSTTRAK II AEROSOL MONITOR 8530 in 3 positions [37 cm in front of the operator(A), 30 cm at left-hand side of the operator(B), and 94 cm at the patient’s head rest(C)]. The real-time aerosol mass was recorded every 5 seconds for 60 seconds (before, during, and after the grinding/polishing). This research used Kruskal-Wallis test, Mann-Whitney U test, independent samples t-test to compare different positions and used Mann-Whitney U test, independent samples t-test to show the differences of with and without Occlu Dust Guard with 0.05 significance level and 95% confidence interval.

Results Without Occlu Dust Guard, dust particles (PM2.5/PM15) generated from grinding/polishing showed highest concentration at position B, followed by position A and C. At position C, dust particles showed no difference from baseline. With an Occlu Dust Guard, significantly higher concentrations of dust particles (PM 2.5/PM15) were shown at position B than position A. At position A, concentration of dust particles was significantly lower when using Occlu Dust Guard whereas no difference reduction of dust particle concentration was shown at position B using Occlu Dust Guard.

Conclusion The distance between operation and various positions affects the concentration of dust particles generated from grinding/polishing acrylic pieces. Occlu Dust Guard can reduce concentration of dust particles in front of the operator position.

Supported by Dental Research Fund, Dental Research Project 3200502#14/2019, Faculty of Dentistry, Chulalongkorn University

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Optimal concentration of potassium iodide on reducing the black staining of silver diamine fluoride

Thongmak P, Lertpayab P, Aiemsri W*, Detsomboonrat P[1], Sooampon S[2],
[1]Department of Community Dentistry, [2]Department of Pharmacology,
Faculty of Dentistry, Chulalongkorn University

Objective To identify the optimal concentration of potassium iodide (KI) that effectively reduces black staining after 38% silver diamine fluoride (SDF) application.

Materials and methods Extracted teeth were collected in normal saline solution. Twenty-four teeth with similar pattern of carious lesions were randomly assigned into 6 groups using different concentrations of KI as follows: 1) SDF only (as a control) 2) SDF+7.5%KI 3) SDF+10%KI 4) SDF+15%KI 5) SDF+20%KI and 6) SDF+saturated KI. KI solution was applied immediately after SDF application. Teeth were taken a photo for color measurement at different time points as followed: before SDF application, immediately after SDF application, immediately after KI application, 1, 3, 7 and 14 days after SDF+KI application. The photos were analyzed for mean gray value using ImageJ program.

Results All groups with KI application showed a significant reduction of black staining after KI application (p<0.05) with dose response relationship. Teeth in 20% KI group had the highest Δ mean gray value compared with other groups after immediate KI application whereas a reduction of black staining of saturated KI group appeared after 1 day of KI application. The Δ mean gray value in all groups decreased over time. After 7 and 14 days, a reduction of black staining was not clearly different among KI groups.

Conclusion Each concentration of KI was able to reduce the degree of black staining with dose response relationship. The group of 20% KI showed the greatest reduction of black staining after immediate KI application, however saturated KI was found to be more effective at later time point.

Supported by Dental Research Fund, Dental Research Project 3200502#15/2019, Faculty of Dentistry, Chulalongkorn University

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Effectiveness of rinsing water and chewing gum on restoring pH of saliva after drinking the drinking yogurt

Suksiripadungwat K*, Arssiri C*, Chaijaroen B*, Pisarnturakit PP[1], Kasevayuth K[2]
[1]Department of Community Dentistry, [2]Department of Biochemistry,
Faculty of Dentistry, Chulalongkorn University

Objective To compare the duration in restoring the salivary pH to normal level by three strategies - rinsing water, chewing gum, and chewing gum after water rinsing - after drinking a drinking yogurt.

Materials and methods A randomized control trial was done in Fifty-two students from the Buddhajak Wittaya School, aged 14-15. All subjects were randomly allocated into 4 groups using computer-generated, random allocation sequences (the approximate sex ratio being 1:1 for each group). The unstimulated salivary flow rate, pH and buffer capacity were measured at baseline. All subjects were assigned to drink 50 ml of drinking yogurt. Then, each group was given different strategies after drinking a drinking yogurt: Group A – plain water rinsing, Group B – gum chewing, Group C – plain water rinsing follow by gum chewing, Control group – not given any intervention. After that, the saliva was collected in the containers at 0, 5, 10, 15, 30 and 45 minutes for measuring the flow rates, pH and buffer capacity. The time in restoring the salivary pH to normal level was compared by Kruskal-Wallis test. A value of $p<0.05$ was considered significant. All statistical analyses were performed using the SPSS statistic.

Results There were no significant differences ($p<0.05$) in the duration in restoring the pH to normal levels in all groups.

Conclusion To restore the salivary pH to normal levels, There was no significant difference in the duration that salivary pH restore to its begining between the control group and the experimental groups.

Supported by Dental Research Fund, Dental Research Project 3200502#16/2019, Faculty of Dentistry, Chulalongkorn University

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A comparative evaluation of etching depth by different etchants: an in vitro study

Vethviharntham K*, Sittichoktrakul T*, Worasiripreecha S*, Chokechanachaisakul U[1], Takolpukdee C[2]
[1]Department of Operative Dentistry, [2]Dental Hospital, Faculty of Dentistry, Chulalongkorn University

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Supported by Dental Research Fund, Dental Research Project 3200502#17/2019, Faculty of Dentistry, Chulalongkorn University

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Silver diamine fluoride and light-curing effects to incipient artificial proximal carious lesions in permanent teeth: the cross-sectional mineral density evaluation

Mahatkomol C, Praneetpong N, Teeravonganan T*, Thanyasrisung P[1], Trairatvorakul C[2],
[1]Department of Microbiology, [2]Department of Pediatric Dentistry,
Faculty of Dentistry, Chulalongkorn University

Will be published elsewhere

Supported by Dental Research Fund, Dental Research Project 3200502#18/2019, Faculty of Dentistry, Chulalongkorn University

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Prevention of radiotherapy-induced salivary gland hypofunction with the green tea catechin epigallocatechin gallate

Chatvichit N*, Pokamanee R*, Trichinda T*,
Sulistiyani E[1,2], Chansaenroj A[1], Oonsiri S[3], Bhalang K[1], Ferreira J[1]
[1]Faculty of Dentistry, Chulalongkorn University [2]Oral Biology Graduate Program,
[3]Dep. of Radiology, King Chulalongkorn Memorial Hospital

Will be published elsewhere

Supported by Dental Research Fund, Dental Research Project 3200502#19/2019, Faculty of Dentistry, Chulalongkorn University

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Biological and therapeutic effects of centella asiatica extract in salivary gland hypofunction

Chanachantyeunyong K*, Jitsa-nga P*, Kanjanakomu A*,
Sulistiyani E[1], Chatchanayuenyong R[2], Chansaenroj A[1], Oonsin S[2],
Sumrejkanchanakij P[1], Chamni S[4], Bhalang K[1], Ferreira J[1]
[1]Faculty of Dentistry, Chulalongkorn University
[2]Faculty of Medicine, Maha Sarakham University
[3]Dep. of Radiology, King Chulalongkorn Memorial Hospital
[4]Faculty of Pharmaceutical Sciences, Chulalongkorn University

Will be published elsewhere

Supported by Dental Research Fund, Dental Research Project 3200502#20/2019, Faculty of Dentistry, Chulalongkorn University

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The effect of acemannan, an extracted polysaccharide from Aloe vera, to some physical properties and cytotoxicity of resin modified glass ionomer cement

Inchudech K*, Kuvieng N*, Lalitkanjanakul S*, Thunyakitpisal P[1,2]

[1]Research Unit of Herbal Medicine, Biomaterial and Material for Dental Treatment, Faculty of Dentistry, Chulalongkorn University

[2]Department of Anatomy, Faculty of Dentistry, Chulalongkorn University

Will be published elsewhere

Supported by Dental Research Fund, Dental Research Project 3200502#21/2019, Faculty of Dentistry, Chulalongkorn University

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Histological and histomorphometric analysis of bovine xenogenous bone substitute (bio-oss®) and normal alveolar bone

Kangsanarak B*, Sompeewong J*, Tuegdee A*, Suwanwela J
Department of Prosthodontics, Faculty of Dentistry, Chulalongkorn University

Objective After losing teeth, alveolar bone loss is inevitable. As osseointegrated implants require sufficient quality and quantity of bone, bone grafting is usually required to meet the treatment expectation. This study aim is to evaluate the histomorphometric result of deproteinized natural bovine cancellous bone mineral (Bio-Oss®).

Materials and methods Five bone samples were harvested from four subjects (1 male, 3 females, aged 41-61 years) who underwent a lateral window technique of maxillary sinus augmentation procedure using xenograft (Bio-Oss). After collected, bone samples were processed for histological and histomorphometric analysis. The fraction area of newly formed bone, residual bone graft and connective tissue were calculated as well as bone-graft direct contact length.

Results Histomorphometrically, 28.95% (+-10.81%) of newly-formed bone, 10.08% (+-7.63%) of remaining graft, 60.97% (+-10.70%), and 30.39% (+-14.94%) of bone-graft direct contact were shown. Histologic findings showed newly formed bone surrounding graft granule in close contact. Minimum inflammatory cells and osteoclasts were found. Blood vessels were also presented within the newly formed bone.

Conclusion With the limitations in the number of subjects in this investigation, Bio-Oss® were revealed to have good biocompatibility and osteoconductive properties. Also, it appeared to be an appropriate human bone substitute material for maxillary sinus augmentation.

Supported by Dental Research Fund, Dental Research Project 3200502#22/2019, Faculty of Dentistry, Chulalongkorn University

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Comparison of oral health-related quality of life during treatment with conventional fixed orthodontic appliances and removable clear aligners: *A non-randomized clinical trial*

Tangamtakul K*, Kangsawiwat P*, Chorsawai S*, Changsiripun C[1], Kaewkamnerdpong I[2]
[1]Department of Orthodontics, [2]Department of Community Dentistry,
Faculty of Dentistry, Chulalongkorn University

Will be published elsewhere

Supported by Dental Research Fund, Dental Research Project 3200502#23/2019, Faculty of Dentistry, Chulalongkorn University

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Dental implant treatment in the Faculty of Dentistry, Chulalongkorn University: 5-year data analysis

Boonyatikarn C*, Srisopon P*, Sookjadit W*, Subbalekha K
Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Chulalongkorn University

Objectives To analyze the data of dental implant treatment in the Faculty of Dentistry, Chulalongkorn University (FDCU) during recent 5 years.

Materials and methods Treatment records of patients who had implant placed during 2014-2018 were searched from FDCU electronic patient's database. Information including sex, age, region, number and complications of implant, and patient's follow-up were collected. Data were analyzed by descriptive statistics using IBM SPSS Statistics software.

Results Among 4,111 records, only 2,734 records with 4,279 implants could be included in this study. The number of patients increased around 10% each year. Sixty percent of patients were female, aged 50-69 years old, 71.3% got implant placed in posterior region. About half of patients (45.5%) followed the maintenance recalls, of which 88.9% presented within 1 year recall, however only 29.6% continued 2-5 years recall. Complications were detected in 364 implants and 76 implants were removed. Seven departments of FDCU provided the implant treatment. However, missing details of implants and illegible handwriting were found in many records.

Conclusion The number of patients receiving dental implant in FDCU were increasing. Most of the implants were placed in posterior region and patients were in early elderly. Only half of the patients followed the maintenance visit and complications were noted. Many incomplete data were found suggesting the urgent in developing a uniform implant record for data analysis and systematic management of dental implant treatment in FDCU. Moreover, implant maintenance schedule should be set for sustainable outcome of implant treatment.

Supported by Dental Research Fund, Dental Research Project 3200502#24/2019, Faculty of Dentistry, Chulalongkorn University

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Effectiveness of drinking green tea in wound healing following surgical removal of lower third molars: A prospective randomized controlled trial

Attaudomporn K, Smuthkochorn K*, Hotrawaisaya R, Kaboosaya B[1], Ampornaramveth R[2]
Department of Oral and Maxillofacial Surgery[1], Department of Microbiology[2],
Faculty of Dentistry, Chulalongkorn University

Objective To study the effect of antimicrobial activity of drinking green tea after surgical removal of impacted mandibular third molar.

Materials and methods The 20 patients with impacted mandibular third molars were randomly divided into two equal groups; drinking with or without green tea after lower third molar removal. All the patients were operated by the same operator and the same clinical conditions. The interrupted sutures were given by 4-0 silk in both groups. Facial swelling and soft tissue healing were evaluated on days 3 and 7 postoperatively with the VAS scale. Seven days postoperatively, the sutures were removed, the adhered micro-organisms were isolated. After incubation, the number of colony-forming units per milliliter was recorded to evaluate the inflammatory reaction indirectly.

Results There were 3 male and17 female, in the age range between 19-31 years. The operative time between the two groups was no significant difference. This study has shown that the relative risk of swelling at day 7 postoperatively was increased in drinking without green tea (RR = 2; $CI_{95\%}$ = 0.467-8.557). Moreover, the microbial load (10^{-5} dilutions) was significantly lower in the drinking green tea group ($p < .013$).

Conclusion The present study found that drinking green tea can be decreased bacterial count in the oral cavity and might be improved wound healing after surgical removal of lower third molars.

Supported by Dental Research Fund, Dental Research Project 3200502#25/2019, Faculty of Dentistry, Chulalongkorn University

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Factors related to success and failure of endodontic treatment in undergraduate dental students in Faculty of Dentistry, Chulalongkorn University

Kerewichien K*, Waleetorncheepsawat J*, Lurklappananon P*, Chokechanachaisakul U
Department of Operative, Faculty of Dentistry, Chulalongkorn University

Will be published elsewhere

Supported by Dental Research Fund, Dental Research Project 3200502#26/2019, Faculty of Dentistry, Chulalongkorn University

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Differences in root canal retreatment method among General practitioner, General practitioner joining continuing dental education, and Endodontist in Thailand

Tangtraitham V*, Thamrongsak S*, Ampornareekul S*, Jearanaiphaisarn T

Department of Operative dentistry, Faculty of Dentistry, Chulalongkorn University

Will be published elsewhere

Supported by Dental Research Fund, Dental Research Project 3200502#27/2019, Faculty of Dentistry, Chulalongkorn University

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Comparison of plaque formation and gingival inflammation between using chlorhexidine mouthrinse with and without mechanical plaque control: a randomized clinical trial

Thussananutiyakul J*, Lertchawalitanon P*, Rungtanakiat P*,
Kamolnarumeth K[1], Sooampon S[2], Arunyanak S[1]
[1]Department of Periodontology, [2]Department of Pharmacology, Faculty of Dentistry, Chulalongkorn University

Will be published elsewhere

Supported by Dental Research Fund, Dental Research Project 3200502#28/2019, Faculty of Dentistry, Chulalongkorn University

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Water sorption and solubility and tensile bond strength of dynamic impression liner compared with conventional acrylic denture liner

Rujichinawong B*, Pitaknitinan B*, Saraluk S*, Tumraswin W, Limpuangthip N
Department of Prosthodontics, Faculty of Dentistry, Chulalongkorn University

Will be published elsewhere

Supported by Dental Research Fund, Dental Research Project 3200502#29/2019, Faculty of Dentistry, Chulalongkorn University

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Anxiety level and behavioral reactions to oral surgery appointment in Thai patients

Kanchanachongkol C*, Lanthomratana C*, Himacharoen P*, Dhanesuan K,
Department of Oral and Maxillofacial surgery, Faculty of Dentistry, Chulalongkorn University

Objective The objective of this study was to investigate the correlation between anxiety level behavioral reactions to oral surgery appointment in Thai patients.

Materials and methods Participants were all patients who made an appointment of receiving oral surgery treatment at Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Chulalongkorn University in January of 2020. Patients were classified into 3 groups of anxiety level which assessed by pre-treatment questionnaire which was combined The Corah's Dental Anxiety scale in thai language by Laokuldilok T. with a Modified Corah's Dental Anxiety scale. The 5th question of Modified Corah's Dental Anxiety scale which associated with using local anesthesia were translated into Thai language. 3 groups of patients will be analysed by comparing to the missing of oral surgery appointment by IBM SPSS Statistics for Windows, Version 22.0 (IBM, Armonk, NY). A P-value < 0.05 will be considered statistically significant.

Results 232 patients were classified as 3 groups. 187 patients are patients without dental anxiety, 40 patients are patients with high dental anxiety and 5 patients are patients with dental phobia. 9.1% of patients without dental anxiety, 12.5% of patients with high dental anxiety and 20% of patients with dental phobia were absent. The result were analysed by IBM SPSS which a P-value was 0.603 which can not conclude that a significant difference exists.

Conclusion The anxiety level behavioral reactions are not associated with missing of dental surgery appointment in Thai patients.

Supported by Dental Research Fund, Dental Research Project 3200502#30/2019, Faculty of Dentistry, Chulalongkorn University

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Determination of safety factors for Le Fort I osteotomy in cleft alveolus and cleft palate using cone beam computed tomography (CBCT)

Tubkruo S*, Rojanahusdin I*, Tangviroon P*, Silkosessak OC
Department of Radiology, Faculty of Dentistry, Chulalongkorn University

Objective To determine the distance from piriform rim to descending palatine canal (DPP) and diameters of the canal (CD) in cleft and non-cleft groups.

Material and methods Total of 114 age- and gender-matched subjects from Faculty of Dentistry, Chulalongkorn University during 2010-2020 was included. Three calibrated-observers analyzed images using three reference planes. Horizontal plane was leveled to lower orbital borders (coronal view) and parallel to hard palate (sagittal view). Vertical plane was tilted according to anterior alveolus. Measurements were made in axial plane at Le-fort I incisional position. The distance from piriform rim to descending palatine canal and its diameter were assessed, while 40 cases were repeatedly measured after 3 weeks. ANOVA and intraclass correlation (ICC) were analyzed using SPSSP (version 25).

Results Sex distribution of the subject is 22:35 (F:M) with mean age of 16.49+5.8 years. Intra-observer and inter-observer reliability are excellent (ICC = 0.994 to 0.999). In bilateral cases, mean DPP in cleft and non-cleft subjects are 31.88 & 36.51 mm (right) and 32.33 & 36.30 mm (left), respectively. Mean CD in cleft and non-cleft subjects are 2.57 & 2.99 mm (right) and 2.45 & 2.96 mm (left), respectively. In unilateral cases, mean DDP in cleft and non-cleft groups are 34.33 & 36.41 mm (ipsilateral) and 35.13 & 36.23 mm (contra-lateral), respectively. Mean CD in cleft and non-cleft subjects are 2.53 & 3.03 mm (ipsilateral) and 2.55 and 2.82 mm (contra-lateral), respectively. Significant differences in DPP ($p<0.00$ to 0.007) and CD ($p=0.002$ and 0.01) in both sides (bilateral cases) and ipsilateral side (unilateral cases) are revealed. The contra-lateral measurements are not statistically significant at $p=0.97$ and 0.54 with 0.382 and 0.488 observed power for DPP and CD, respectively.

Conclusion Separated safe distance in cleft patient should be utilized.

Supported by Dental Research Fund, Dental Research Project 3200502#31/2017, Faculty of Dentistry, Chulalongkorn University

32nd Research Day

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Oral health-related quality of life (OHRQoL) of patients receiving conventional dental prosthetic treatment in Faculty of Dentistry, Chulalongkorn University

Chantanimi T*, Saengthong-aram P*, Jirapawatana W*, Limpuangthip N[1]

[1]Department of Prosthodontics, Faculty of Dentistry, Chulalongkorn University

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Supported by Dental Research Fund, Dental Research Project 3200502#32/2019, Faculty of Dentistry, Chulalongkorn University

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Student Research Awards 2019

1. Student: Ms. Nirin Manosubsak
   Adviser: Associate Professor Waleerat Sukarawan, Assistant Professor Wannakorn Sriarj
   Award Second Prize at the 7th International Students Dental Conference 2019
   Place: Dubai, UAE
   Date: Feb 10-11, 2019

2. Student: Ms. Onpimol Chuenchutham, Ms. Thanatchaporn Jindanil, Mr. Peerakan Kupprano, and Mr. Chakapol Chaisuwan
   Adviser: Associate Professor Panida Thanyasrisung
   Award: First Prize at the 8th Thailand Joseph Lister Award in Oral Disease Prevention 2019
   Place: Bangkok, Thailand
   Date: May 1, 2019

3. Student: Ms. Natchareya Jantasiripad, Ms. Panipak Assawasongsilp, Mr. Phantana Saengjan, and Ms. Wimwipa Sangrat
   Adviser: Associate Professor Pagaporn Pantuwadee Pisarnturakit
   Award: First Prize at the 8th Thailand Joseph Lister Award in Oral Disease Prevention 2019
   Place: Bangkok, Thailand
   Date: May 1, 2019

4. Student: Dr. Methaphon Songvejkasem
   Adviser: Dr. Siriporn Songsiripradubboon
   Award: Outstanding Performance Award at the 7th Academic Science and Technology Conference (ASTC 2019)
   Place: Pathumtani, Thailand
   Date: Jun 7, 2019

5. Student: Ms. Jaranawan Kongchantuk, Ms. Kanoksiri Jriyasetapong, and Ms. Yaraporn Kunupakarn
   Adviser: Associate Professor Soontra Panmekiate
   Award: The Best Poster Presentation (undergraduate student category) at the 17th International Scientific Conference of the Dental Faculty Consortium of Thailand (DFCT2019)
   Place: Khon Kaen, Thailand
   Date: Jun 8-10, 2019

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6. Student: Dr. Nanthanut Pisalsitsakul
Adviser: Dr. Paksinee Kamolratanakul
Award: The Best Poster Presentation (master student/postgraduate student category) at the 17th International Scientific Conference of the Dental Faculty Consortium of Thailand (DFCT2019)
Place: Khon Kaen, Thailand
Date: Jun 8-10, 2019

7. Student: Mr. Tanit Arunratanotha, Ms. Chnamon Rungsikavanich, and Ms. Monrada Songmeesup
Adviser: Associate Professor Oranart Matangkasombut
Award: The 1st Runner up Poster Presentation (undergraduate student category) at the 17th International Scientific Conference of the Dental Faculty Consortium of Thailand (DFCT2019)
Place: Khon Kaen, Thailand
Date: Jun 8-10, 2019

8. Student: Dr. Narin Intarak
Adviser: Associate Professor Thantrira Porntaveetus
Award: The 1st Runner up Poster Presentation (doctoral student/postdoctoral research fellow category) at the 17th International Scientific Conference of the Dental Faculty Consortium of Thailand (DFCT2019)
Place: Khon Kaen, Thailand
Date: Jun 8-10, 2019

9. Student: Dr. Chatvadee Kornsuthisopon
Adviser: Professor Thanaphum Osathanon
Award: The 2nd Runner up Poster Presentation (doctoral student/postdoctoral research fellow category) at the 17th International Scientific Conference of the Dental Faculty Consortium of Thailand (DFCT2019)
Place: Khon Kaen, Thailand
Date: Jun 8-10, 2019

10. Student: Dr. Chawan Manaspon
Adviser: Associate Professor Thantrira Porntaveetus
Award: The 2nd Runner up Oral Presentation (doctoral student/postdoctoral research fellow category) at the 17th International Scientific Conference of the Dental Faculty Consortium of Thailand (DFCT2019)
Place: Khon Kaen, Thailand
Date: Jun 8-10, 2019

11. Student: Dr. Kantaporn Kunpanichakit
Adviser: Professor Chutima Trairatvorakul, Associate Professor Panida Thanyasrisung
Award: First prize for academic presentation at the 8th Annual Meeting of The Royal College of Dental Surgeons of Thailand
Place: Bangkok, Thailand
Date: Nov 7, 2019

12. Student: Dr. Ratchatawan Siriphan
Adviser: Assistant Professor Kanoknadda Tavedhikul, Dr. Attawood Lertpimonchai
Award: First prize for academic presentation at the 8th Annual Meeting of The Royal College of Dental Surgeons of Thailand
Place: Bangkok, Thailand
Date: Nov 7, 2019

13. Student: Dr. Kamolchanok Kamolnarumeth
Adviser: Assistant Professor Sirikarn Arunyanak, Associate Professor Sireerat Sooampon
Award: Second prize for academic presentation at the 8th Annual Meeting of The Royal College of Dental Surgeons of Thailand
Place: Bangkok, Thailand
Date: Nov 7, 2019

14. Student: Paweena Yimarj
Adviser: Associate Professor Atipan Pimkhaokham
Award: First prize for Clinical Science at the 5th Bangkok International Symposium of Implant Dentistry 2019
Place: Bangkok, Thailand
Date: Nov 27-29, 2019

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15. Student: Dr. Sunida Engkawong
Adviser: Assistant Professor Keskanya Subbalekha
Award: The 1st Runner up for Clinical Science at the 5th Bangkok International Symposium of Implant Dentistry 2019
Place: Bangkok, Thailand
Date: Nov 27-29, 2019

16. Student: Mr. Wachirawit Suntawan, and Mr. Wasupon Juengkijthanawat
Adviser: Professor Prasit Pavasant
Award: First Prize Winner IADR-SEA Unilever Hatton Divisional Award (Junior Category) at the 33rd IADR-SEA Annual Scientific Meeting and The 4th meeting of IADR-Asia Pacific Region
Place: Brisbane, Australia
Date: Nov 28-30, 2019

17. Student: Ms. Thanatchaporn Jindanil, Mr. Chakapol Chaisuwan, Ms. Onpimol huenchutham, and Mr. Peerakan Kupprano
Adviser: Associate Professor Panida Thanyasrisung,
Associate Professor Oranart Matangkasombut
Award: First Prize winner IADR-SEA Division/Joseph Lister Awards in Oral Disease Prevention at the 33rd IADR-SEA Annual Scientific Meeting and The 4th meeting of IADR-Asia Pacific Region
Place: Brisbane, Australia
Date: Nov 28-30, 2019

18. Student: Ms. Kanisa Chantarothorn, Ms. Nattakarn Narongchai,
and Ms. Apisara Trairattanapa
Adviser: Associate Professor Ruchanee Ampornaramveth
Award: First Prize at the 22nd Student Clinician Research Competition at the 2nd meeting Dental Association of Thailand 2019
Place: Bangkok, Thailand
Date: Dec 18, 2019

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Faculty Research Awards 2019

1. Associate Professor Pornchai Jansisyanont

   Award: Outstanding dentist award in the field of academic management from the Dental Council

   Place: Faculty of Dentistry, Chulalongkorn University, Bangkok, Thailand

   Date: Jan 30, 2019

2. Associate Professor Thantrira Porntaveetus

   Award: 2019 TRF-OHEC-Clrivate Analytics Research Excellence Award

   Place: Cha Am, Phetchaburi, Thailand

   Date: Jan 9-11, 2019

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